USER MANUAL

ATU-R305

USB ADSL Modem

CTC union CTC Union Technologies Co., Ltd.

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About This Manual

This manual provides a comprehensive user's guide and installation manual for solution ATU-R305 ADSL Modems. It has been organized in a way that should make it easy to follow by users worldwide. In order to ensure optimal comprehension, the following list provides brief descriptions of the formatting styles used in this manual.

- **Commands:** Commands are always shown as bold-faced words with the word "click" preceding them. For example, click **Next,** click **OK**, or click **Cancel**.
- **Names of Windows (Dialog Boxes):** The names of the windows (also referred to as dialog boxes) that appear on the PC screen are referred to in quotes. For example, the "Remote Access Setup" window, or the "Setup Wizard".
- **Names of Options in Windows:** The names of options to choose from inside the windows that appear on the PC screen are referred to in italics. For example, choose the *Don't detect my modem* option, or choose the *Accept any authentication* option from the window.
- **Notes:** In some cases, preparatory or cautionary information is needed before proceeding onto the next step in an installation process. This kind of information is provided in the form of notes, which appear in bold italics: ***Note: Required if not using default value.***
  Or as in the following example:

Note: If you quit this process, run the setup.exe from the driver folder to resume the installation.

Preface

The ATU-R305 ADSL Modem Manual

This manual contains information regarding the installation, operation, and configuration of the ATU-R305 ADSL Modem. Additionally, it outlines the use of the Control Panel Application.

The following chapters are included in this manual:

- **Chapter 1:** "Overview" offers a brief description of ADSL, protocol and device driver selection, and the features of the ATU-R305 ADSL Modem.
- **Chapter 2:** "ATU-R305 ADSL Modem Hardware Installation" describes the steps for connecting the ATU-R305 ADSL Modem.
- **Chapter 3:** "Software Installation" describes the steps for installing the ATU-R305 ADSL Modem drivers under various operating systems.
- **Chapter 4:** "Customizing Communication Settings" provides detailed steps for altering the ATM Virtual Path ID (VPI), ATM Virtual Circuit ID (VCI), Encapsulation type and/or Modulation type values previously defined.
- **Chapter 5:** "Updating the ATU-R305 ADSL Modem Software," details the procedure for updating to a new version of the modem software.
- **Chapter 6:** "The Modem Control Panel Application" describes how to use the Control Panel of the modem to configure and check the performance of the ATU-R305 ADSL Modem and the ADSL connection.
- **Chapter 7:** "Software Uninstall" provides detailed steps for removing the ATU-R305 ADSL Modem software from the PC.

Chapter 1: Overview

About ADSL

Asymmetric Digital Subscriber Line (ADSL) technology provides high-speed data access across regular phone lines (copper wires) by making use of previously unused frequency bandwidth above the voice band. By placing the ADSL signal above the frequency of the voice signal, ADSL service is able to coexist on the same line with your telephone service. ADSL is asymmetric in the sense that it provides a higher data rate in the downstream (receive) direction than in the upstream (transmit) direction. Asymmetric operation is ideal for typical home and small office use where files and information are downloaded more frequently than uploaded.

The ATU-R305 ADSL Modem is capable of supporting the following DSL standards: ANSI T1.413 Issue 2, ITU G.992.1 (G.DMT), ITU G.992.2 (G.lite), and ITU G.992 Annexes A, B, and C as applicable.

Protocol and Device Driver Selection

The ATU-R305 ADSL Modem can be easily connected to a USB port on the PC via a standard USB cable. The ATU-R305 ADSL Modem is fully software upgradeable so that new features and updates may be added by simply loading a new version of the device driver onto your PC.

ADSL modems employ ATM (Asynchronous Transfer Mode) framing. ATM is a protocol that divides packets into small fixed sized cells for rapid transmission over high-speed networks. The ATM protocol allows various types of traffic (e.g. data, voice, and video) to be securely and efficiently carried over the same network. ATM is being widely deployed by telecommunications carriers in their backbone networks. Two type of ATM connections are possible, PVC (Permanent Virtual Circuit) and SVC (Switched Virtual Circuit).

Several different protocols are used on top of ATM. The protocol required in your configuration depends on the equipment deployed by your DSL service provider. There are several possibilities:

1. Point to Point Protocol (PPP) Over ATM (RFC 2364) - PPP provides session setup, user authentication (login), and encapsulation for upper layer protocols such as IP (Internet Protocol). The use of PPP makes the modem appear as a dial modem to the operating system. Dial-Up Networking is used to establish a connection. The WAN (Wide Area Network) driver and the ATM driver support PPP.
2. Bridged/Routed Ethernet/IP over ATM (RFC 1483) – This protocol makes the modem appear as a local area network (LAN) device to the operating system.
3. RFC 1577 – This is a local area network protocol which supports IP to ATM and ATM to IP address mapping.
4. Point-to-Point Protocol (PPP) Over Ethernet (RFC 2516) - This protocol, commonly called PPPoE, allows multiple computer users on an Ethernet to share a common DSL connection

to the Internet. The WAN, LAN, and ATM drivers support PPPoE. Refer to “Appendix B: Point-to-Point Protocol over Ethernet” for more details.

Three types of device drivers are provided for the ADSL USB modem, WAN, LAN, and ATM. Note that all three drivers support ATM protocol. In addition, the ATM driver works with ATM services that are available in recent Windows operating systems. The proper choice of driver depends on the combination of Windows operating system and protocol.

1. WAN driver – This driver causes the modem to resemble a dial-up modem. Call establishment is performed through Dial-Up Networking. This driver supports RFC 2364 and 2516 with PVC connections. It can be used with Windows 98, Windows 98 SE, Windows 2000, Windows Me, and Windows XP, MAC OS 9.x (RFC 2364 only), MAC OS X 10.1.x and above (RFC 2364 only), as well as Linux.
2. LAN driver - This driver makes the modem appear as a LAN or Ethernet device. Connection establishment is automatic. This driver supports RFC 1483 with PVC connections. Additionally, PPPoE is supported via third-party software. This driver can be used with Windows 98, Windows 98 SE, Windows 2000, Windows Me, and Windows XP, MAC OS 9.x, MAC OS X 10.1.x and above, as well as Linux.
3. ATM driver – This driver works in conjunction with ATM services provided by Windows. RFC 1577, PPPoE, and RFC 2364 are supported. The ATM driver uses Dial-Up Networking to create a PVC or SVC connection to establish a PPP (RFC 2364) connection. This driver can be used with Windows 98 SE, Windows 2000, Windows Me, and Windows XP. Note that PPPoE support is provided for Windows XP only.

The device driver choices are summarized in the table below:

Driver Type	Protocol	Operating System
WAN	RFC 2364 RFC 2516 (not with MAC OS 9.x, nor with MAC OS X)	Windows 2000 Windows XP Windows Me Windows 98 SE Windows 98 MAC OS 9.x MAC OS X 10.1.x and above Linux
LAN	RFC 1483 RFC 2516 (MAC OS X 10.1.x and above, only)	Windows 2000 Windows XP Windows Me Windows 98 SE Windows 98 MAC OS 9.x MAC OS X 10.1.x and above Linux
ATM	RFC 1577 RFC 2364 RFC 2516 (Windows XP only)	Windows 2000 Windows XP Windows Me Windows 98 SE

Features

The ATU-R305 ADSL Modem provides the following features:

- Compliant with Universal Serial Bus Specification Revision 1.1
- USB bus-powered; an external power supply is not required
- Supports three device drivers: Microsoft NDIS 4.0 WAN Miniport, NDIS 4.0 LAN Miniport or NDIS 5.0 ATM Miniport
- Compatible with T1.413 i2, G.DMT, and G.lite compliant CO DSLAM equipment
- Software upgradeable
- ATM driver supports up to sixteen simultaneous ATM virtual connections
- Includes a control panel monitoring program for configuring the adapter and checking the status of the connection on both Windows and Macintosh systems
- Provides an RJ-11 connector for connection to the telephone line
- Supports DSL downstream data rates up to 8 Mbps (125 times faster than standard 56K modems)
- Supports DSL upstream data rates up to 1024 kbps
- Support for PPP over Ethernet (PPPoE)

Chapter 2: ATU-R305 ADSL Modem Hardware Installation

Before you start…

In MAC operating systems, you need to install the device drivers first (see next chapter) and then perform the hardware installation steps below.

Hardware Installation

Install the ATU-R305 ADSL Modem by following these steps with the PC running:

1. Insert the rectangular end of a USB cable into the USB port of your PC.

2. Insert the square end of the USB cable into the USB port of the ATU-R305 ADSL Modem.

In Windows operating systems, the ATU-R305 ADSL Modem will be detected and informational messages will be displayed on the PC's screen. Proceed with the software installation in the next chapter, using the operating system appropriate to you.

Chapter 3: Software Installation

The software installation procedures vary depending upon the operating system of your PC. Be sure to follow the instructions provided for the operating system appropriate for you.

Before you start…

The following information may be required for software installation. Contact your DSL service provider before proceeding with software installation.

- IP Address Settings – the software installation process allows the server to dynamically assign IP Address settings. If your application requires static setting of specific address information you will need to know:

  IP Address
  Subnet Mask (for Bridged Ethernet applications only)
  Default Gateway (for Bridged Ethernet applications only)

- Name Server Information – the software installation process allows the server to dynamically assign Name Server Address settings. If your application requires static setting of specific address information you will need to know:

  Primary DNS Address
  Secondary DNS Address
  Primary WINS Address
  Secondary WINS Address

- Type of Driver to be installed – WAN, LAN and ATM software drivers are supported.

  Note: Required if not using default value

- ATM Virtual Path ID (VPI)

  Note: Required if not using default value

- ATM Virtual Circuit ID (VCI)

  Note: Required if not using default value

- Encapsulation type

  Note: Required if not using default value

- Modulation type

  Note: Required if not using default value

- User Name (for PPP applications only)
- Password (for PPP applications only).

Windows Installation

The software setup process for Microsoft Windows applications (XP, 2000, Me, 98 SE, and 98) is described below with operating system specific differences noted. The ATU-R305 ADSL Modem should be connected to your PC prior to installing the driver software. No other Windows programs should be running on your PC during the software install process.

Note: The appearance of the windows and the wording of the options may be slightly different for each operating system, but the same procedure applies.

Installing the Driver Software

1. In the procedure that follows, we shall refer to the folder where the driver files reside as the Device Driver Folder.

2. An informational message may be displayed. If so, click **Next>** to start the installation.

3. A window will appear asking what you want the system to do. The *recommended* option will always search for the appropriate driver software. Select the recommended option by clicking on the radio button to its left, and click **Next>**

4. A window may be displayed which allows you to specify the location of the driver software to be installed. If so, point to the Device Driver Folder (See Step 1) with no other options selected and click **Next>**. A message will indicate that the system is ready to install the device driver; click **Next>**.

   a) For Windows Me applications, the “Select Other Driver” window may ask you to select the driver from a list of drivers. If asked, highlight the root directory, identified with “GROOTUSB.INF” in the Location column, and click **OK**.

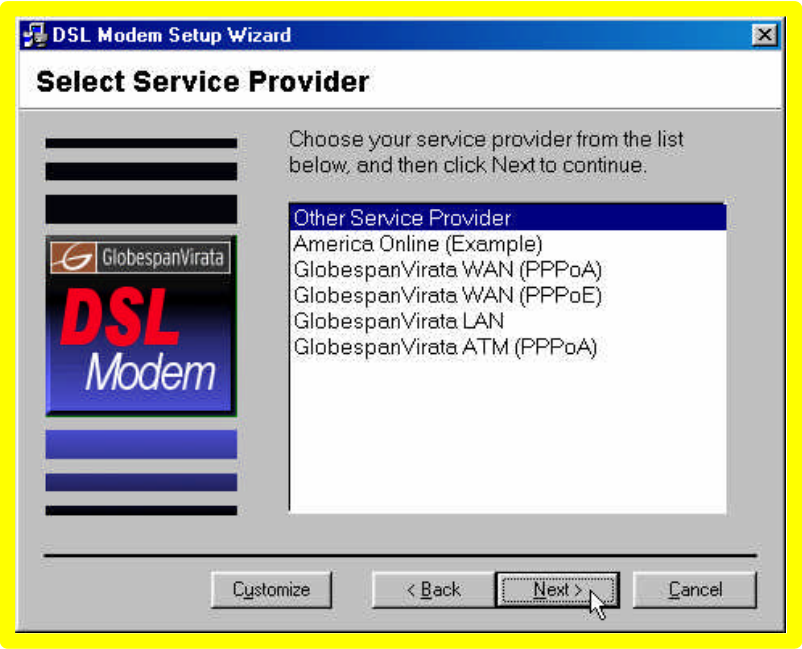
5. For Windows 98, Windows 98 SE, Windows Me applications, a message will confirm that the device driver software has been installed; click **Finish**.

6. The “Welcome” window appears to start the next phase of the installation, and provides an opportunity to quit the setup process to exit all Windows programs before continuing. If the Windows programs were previously closed, click **Next>**.

Note: If you quit this process, run setup.exe from the Device Driver Folder to resume the installation.

7. A Licensing Agreement message will be displayed; click **Accept**.

8. The “Select Service Provider” window allows you to specify your DSL service provider. A list of service providers is displayed. Default values for the Type of Driver, ATM Virtual Path ID (VPI), ATM Virtual Circuit ID (VCI), Encapsulation type and Modulation type are provided for each DSL service provider listed in the window.

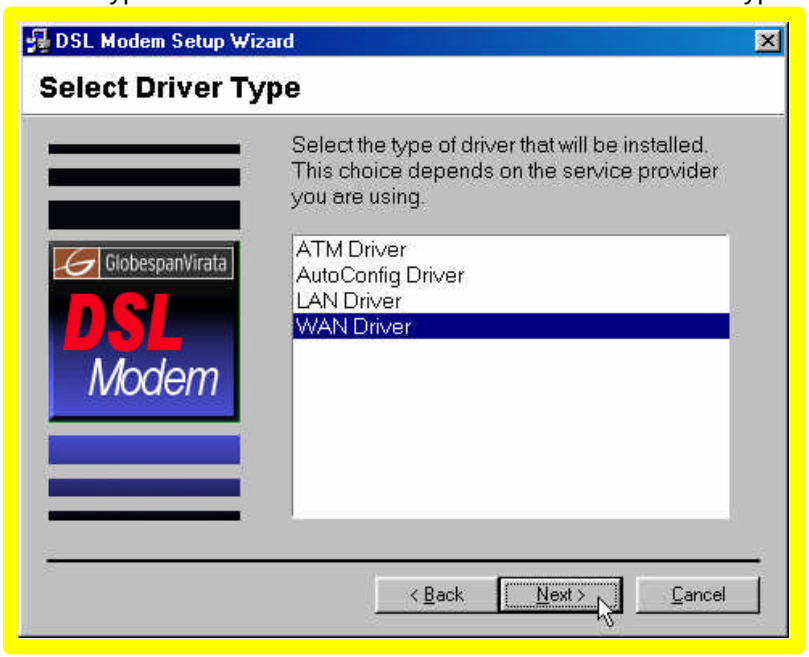


If your DSL service provider is listed and you would like to accept the default values, highlight the provider’s name and click **Next>**. Continue with Step 9.

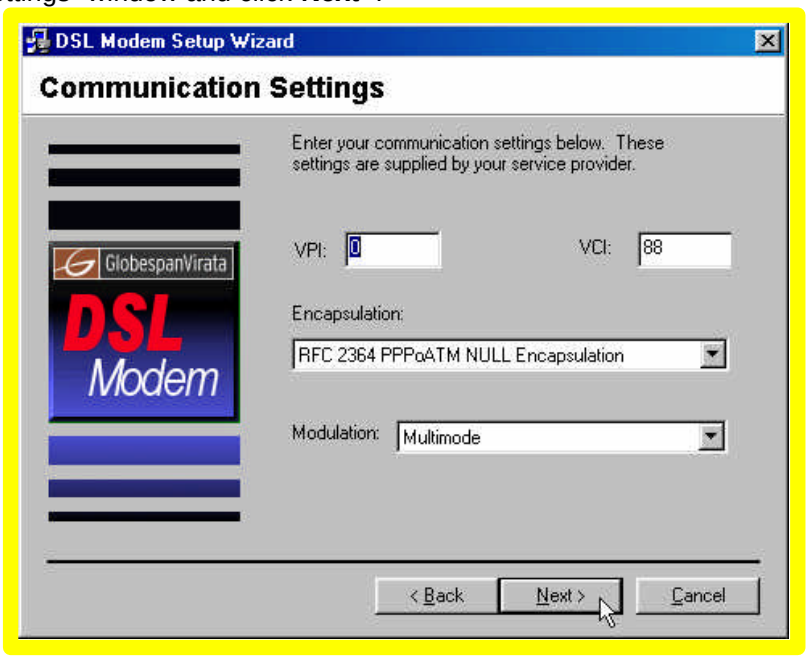
If your DSL service provider is listed and you would like to change the default values, highlight the provider’s name and click **Customize**. Continue with Step a).

If your DSL service provider is not listed select *Other Service Provider* and click **Next>.** Continue with Step a).

a) Select the type of driver to be installed from the “Select Driver Type” window and click **Next>**.

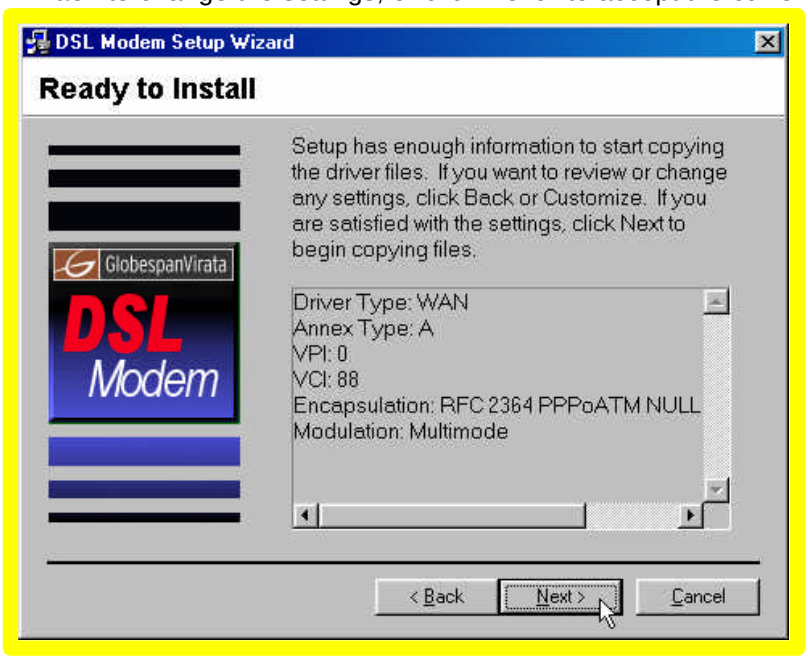


b) Enter/Select the VPI, VCI, Encapsulation type and Modulation type from the “Communication Settings” window and click **Next>**.



Note: The encapsulation types that appear in the drop-down list vary depending upon the type of driver selected in the previous step.

9. The “Ready to Install” window will be displayed. You may review the current settings and click **<Back** to change the settings, or click **Next>** to accept the current settings.


DSL Modem Setup Wizard
Ready to Install
Setup has enough information to start copying the driver files. If you want to review or change any settings, click Back or Customize. If you are satisfied with the settings, click Next to begin copying files.
GlobespanVirata
DSL
Modem
Driver Type: WAN
Annex Type: A
VPI: 0
VCI: 88
Encapsulation: RFC 2364 PPPoATM NULL
Modulation: Multimode
< Back
Next >
Cancel

10. A message will be displayed indicating that the drivers are being installed.

Note: You may need the Windows CD to complete the installation.

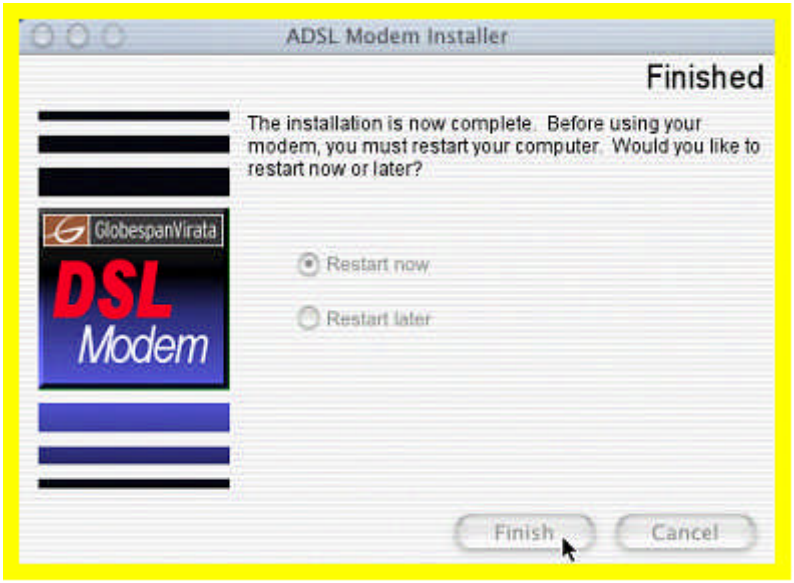
11. The system must be rebooted to have the new settings take effect, therefore the “Reboot” window will appear. Remove all disks from their drives, select *Yes, reboot the computer now*; and click **Close** to reboot.
12. Once the PC has rebooted, installation of the USB Modem is complete.
    a) Windows 98 WAN or ATM applications will ask you to provide telephone number and location information. Enter the information and click **Close**.
    b) The “Finished” window will be displayed indicating the installation has been completed. Click **Finish**.

MAC OS 9.x Installation

When installing a USB Modem on a Macintosh running OS 9.x, you will need to install the drivers first, and then plug the USB cable from your modem to the computer.

Installing the Driver Software

1. In the procedure that follows, we shall refer to the folder where the driver files reside as the Device Driver Folder.
2. In the Device Driver Folder, locate the Installer application and invoke it by double-clicking on it.
3. The “Welcome” screen will appear. Click **Next** to proceed.
4. The “License Agreement” screen will appear. Click **Accept**.
5. When all necessary files have been copied, the “Finished” screen will appear giving you the opportunity to restart your computer. Since you must restart your computer before using your modem, select *Restart now* (click inside the radio button to the left of it) and click **Finish**.



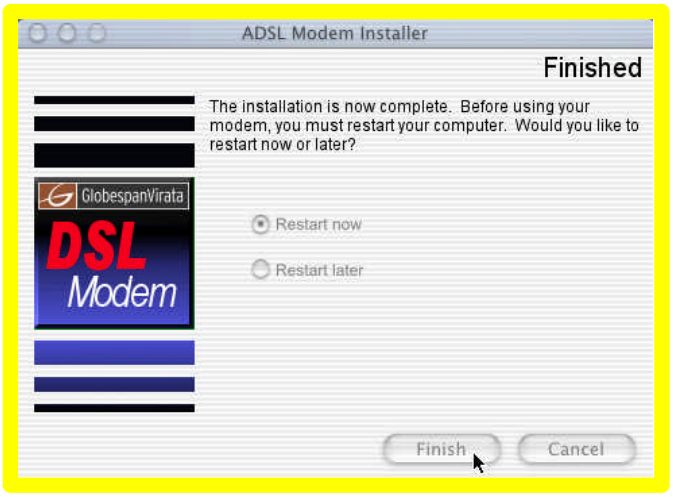
MAC OS X Installation

When installing a USB Modem on a Macintosh running OS X, you will need to install the drivers first, then plug the USB cable from your modem to the computer.

Note: This device driver supports MAC OS X 10.1.x and above. It does ***not*** support MAC OS X 10.0.

Installing the Driver Software

1. In the procedure that follows, we shall refer to the folder where the driver files reside as the Device Driver Folder.
2. In the Device Driver Folder, locate the Installer application and invoke it by double-clicking on it.
3. The "Welcome" screen will appear; click **Next** to proceed.
4. Enter the administrator login and password on the "Authenticate" screen and click **OK**.
5. The "License Agreement" screen will appear. Click **Accept**.
6. When all necessary files have been copied, the "Finished" screen will appear giving you the opportunity to restart your computer. Since you must restart your computer before using your modem, select *Restart now* (click inside the radio button to the left of it) and click **Finish**.



The USB driver is now installed. Before using your ATU-R305 ADSL Modem, connect the modem to the computer using the proper USB device cable and connect the DSL line to the ATU-R305 ADSL Modem.

To configuration the USB modem, consult "Appendix A: Modifying TCP/IP Networking Options." Instructions for the WAN driver (RFC2364, PPP over ATM, and RFC 2516, PPP over Ethernet) may be found starting at page 38. Instructions for the LAN driver (RFC 1483) may be found starting at page 51.

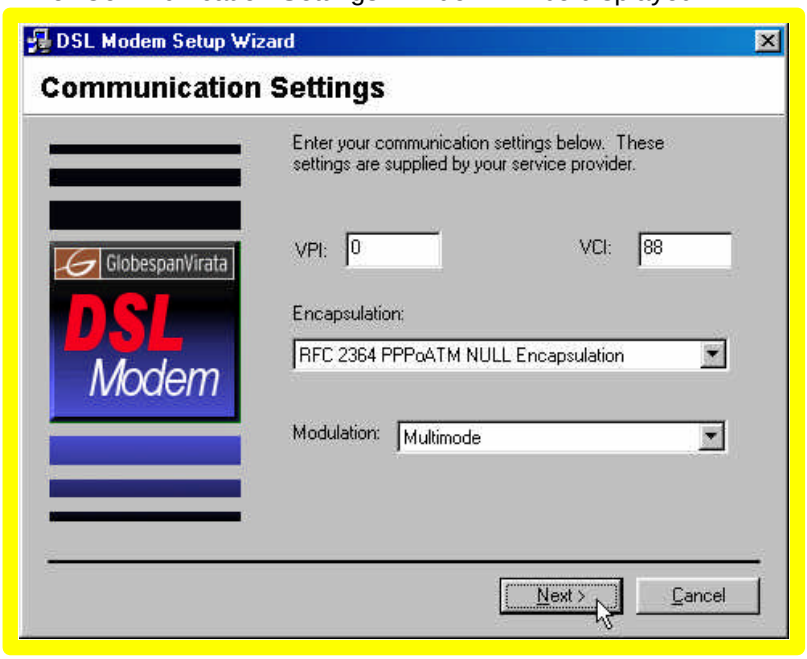
Chapter 4: Customizing Communication Settings

Accessing Communication Settings on Windows

Once the ATU-R305 ADSL Modem and software have been installed, the communication settings may be easily updated by performing the following steps:

1. From your PC desktop click **Start → Programs → DSL Modem → Configure**.

2. The "Communication Settings" window will be displayed.



   Make the necessary changes to the VPI, VCI, Encapsulation type and/or Modulation type and click **Next>**.

3. The system must be rebooted to have the new settings take effect, therefore the "Reboot" window will appear. Remove all disks from their drives, select *Yes, reboot the computer now*; and click **Close** to reboot.

Accessing Communication Settings on Mac

Access to the USB modem's Communication Settings is not provided on the MAC OS.

Chapter 5: Updating the ATU-R305 ADSL Modem Software

Windows Drivers Update

Once the ATU-R305 ADSL Modem has been installed, updating to a new version of the software is an easy process. Simply uninstall the existing drivers (See “Windows Uninstall” on page 20), and then install the new drivers (See “Chapter 3: Software Installation” on page 7).

Note: Be sure to follow the instructions provided for the appropriate operating system for your application.

MAC OS 9.x and OS X Drivers Update

In order to upgrade the USB Modem drivers on the Macintosh, simply uninstall the existing drivers (see “MAC OS 9.x Uninstall” on page 21 or “MAC OS X Uninstall” on page 22), and then install the new drivers (see the MAC OS installation instructions on page 12 or the OS X installation instructions on page 13).

Note: Be sure to follow the instructions provided for the appropriate operating system for your application.

Chapter 6: The Modem Control Panel Application

The ATU-R305 ADSL Modem control panel program provides a quick and easy way to configure and check the performance of the modem and the ADSL connection. When open, the monitor window updates every 2 seconds.

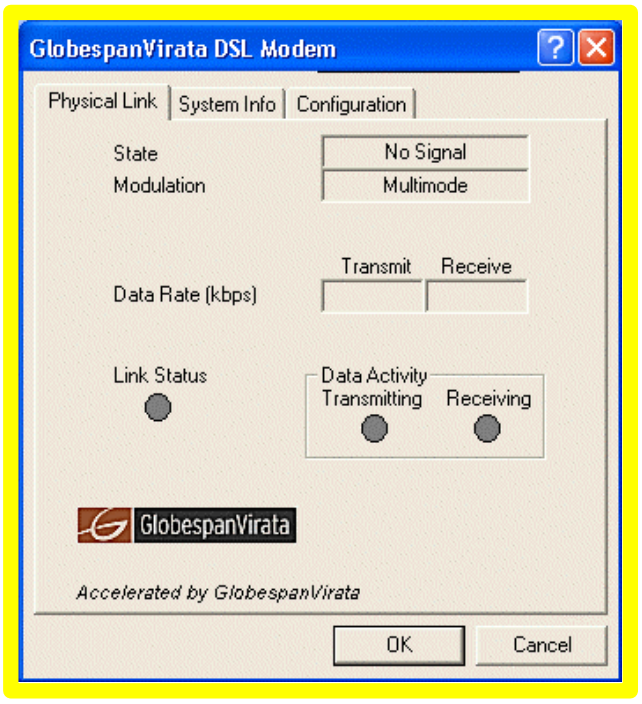
Windows Control Panel

1. There are two methods to access the control panel:

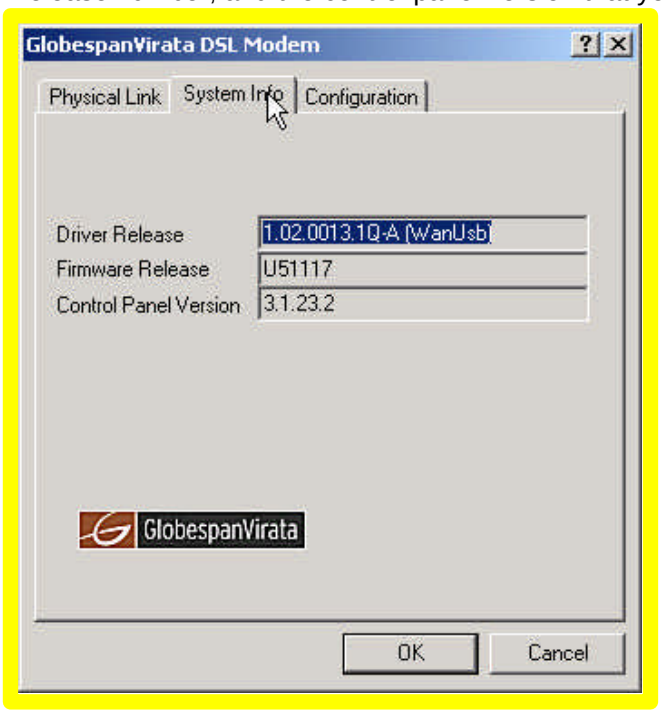
   - From the "Control Panel" window (**Start → Settings → Control Panel**), double click the **DSL Modem** icon, or
   - From the PC desktop, double click the **DSL Modem** icon in the system tray.

Note: To access the Control Panel, the device driver must be running. Also, make sure the USB cable is plugged into the modem.

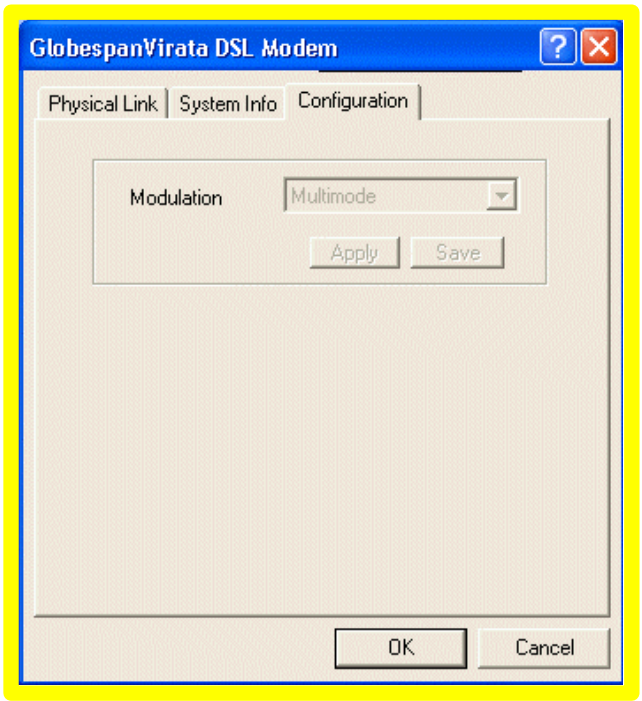
2. The "Physical Link" tab of the " DSL Modem" window (Control Panel) allows you to review the current state of the ATU-R305 ADSL Modem and connection. The green indicator for *Link Status* signifies that a connection has been made. This indicator blinks while a connection is being established. Individual flashing yellow indicators show the *Transmitting* and *Receiving* data activity separately.



3. The “System Info” tab displays the release number of the DSL modem driver, the firmware release number, and the control panel version that you are currently using.



4. The “Configuration” tab offers driver appropriate Modulation, Encapsulation, and VPI and VCI values. If you are using a WAN or ATM driver, only the Modulation type will be displayed.



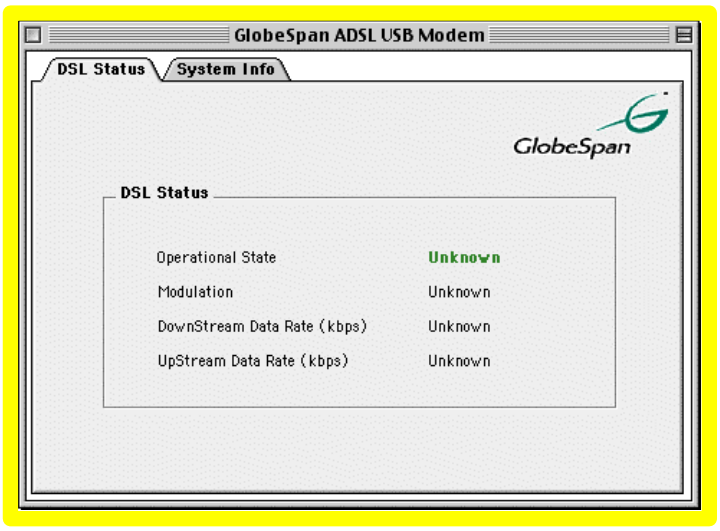
MAC OS 9.x Control Panel

1. To access the modem Control Panel on a Macintosh, click on the **Apple** icon ( ) then select **Control Panels → ADSL Setup**

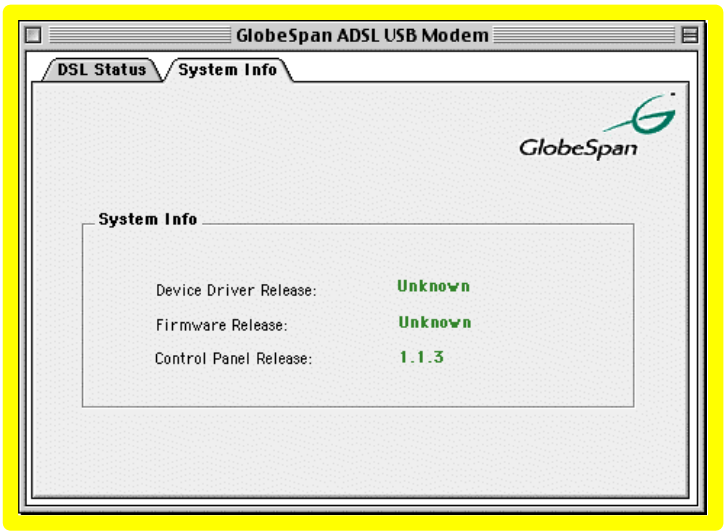
Note: To access the Control Panel, the device driver must be installed.

2. The “ADSL USB Modem” window will appear, with two informational tabs:

   a) The “DSL Status” tab provides status information for the DSL line, such as the upstream/downstream data rates, the modulation and whether it is operational or not.



   b) The “System Info” tab provides general information about the various software/firmware versions.



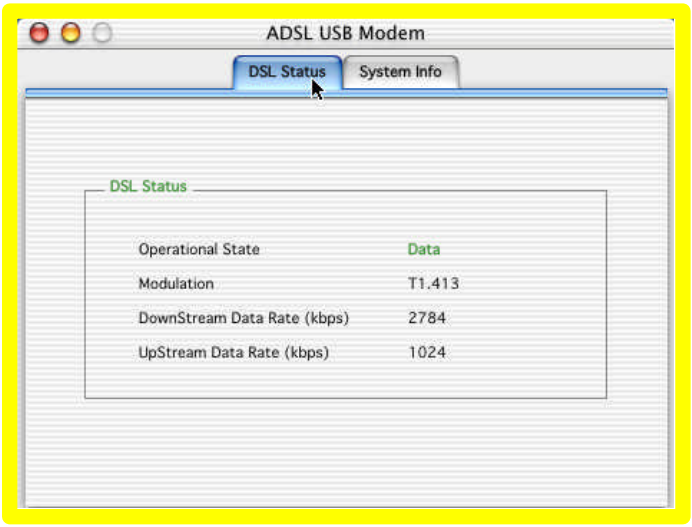
MAC OS X Control Panel

1. Access the modem Control Panel on your Macintosh (Go→Applications→DSL MODEM→ADSL USB MODEM).

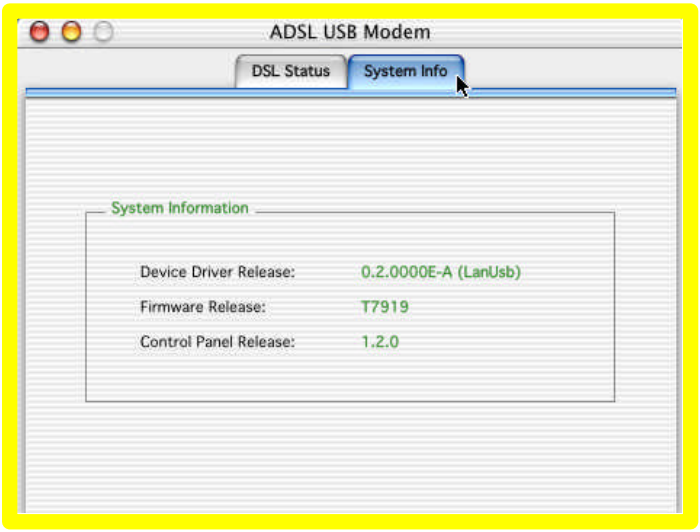
Note: To access the Control Panel, the device driver must be installed.

2. The “ADSL USB Modem” window will appear, with two informational tabs:

   a) The “DSL Status” tab provides status information for the DSL line, such as the upstream/downstream data rates, the modulation and whether it is operational or not.



   b) The “System Info” tab provides general information about the various software/firmware versions.



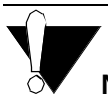
Chapter 7: Software Uninstall

Windows Uninstall

Remove the ATU-R305 ADSL Modem software drivers by performing the following steps.

Note: The USB cable should not be unplugged until you are prompted to do so.

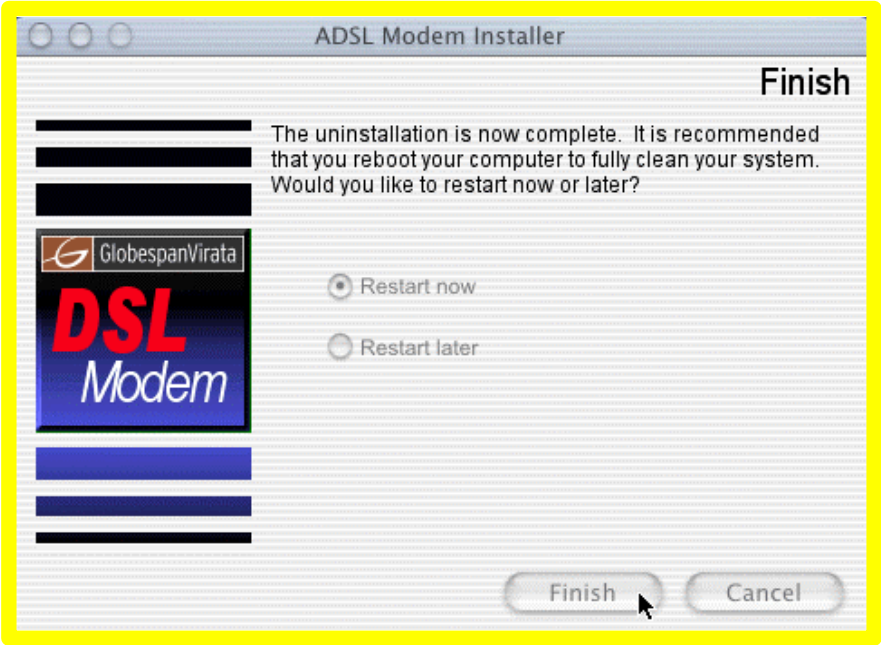
1. From your PC desktop click **Start → Programs → DSL Modem → Uninstall**.
2. A message will be displayed asking you to confirm the removal of the ATU-R305 ADSL Modem software, click **Yes**.
3. You will be reminded not to unplug the USB cable until the uninstall process has been completed. Click **OK**.
4. A message will be displayed indicating the software is being removed.
5. You will be prompted to unplug your modem. Unplug the USB cable from the PC and click **OK**.
6. The “Reboot” window will appear. Remove all disks from their drives, select *Yes, reboot the computer now*; and click **Close** to reboot.



Note: The USB cable must be unplugged before the system is rebooted.

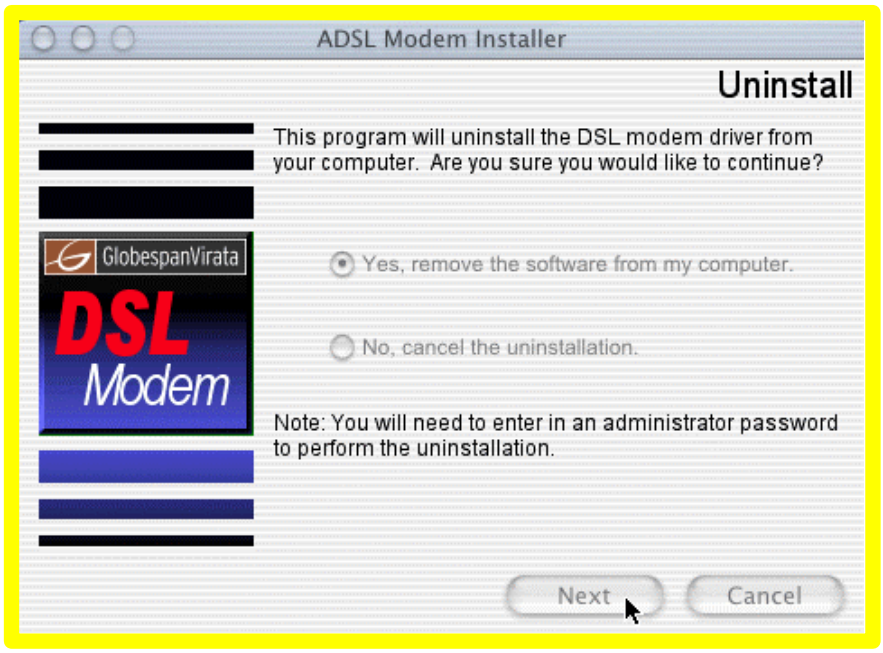
MAC OS 9.x Uninstall

1. Invoke the Uninstaller from the DSL Modem folder (Applications→DSL MODEM→Uninstall).
2. The “Uninstall” screen will appear. Select *Yes, remove the software from my computer* and click **Next**.
3. The “Removing Software” screen will indicate that files are being removed.
4. If you have not unplugged the USB cable, you will be prompted to do so. Unplug the cable and click **OK**.
5. The “Finish” screen will appear. The computer must be restarted to complete the uninstall process. Select *Restart now* and click **Finish**.



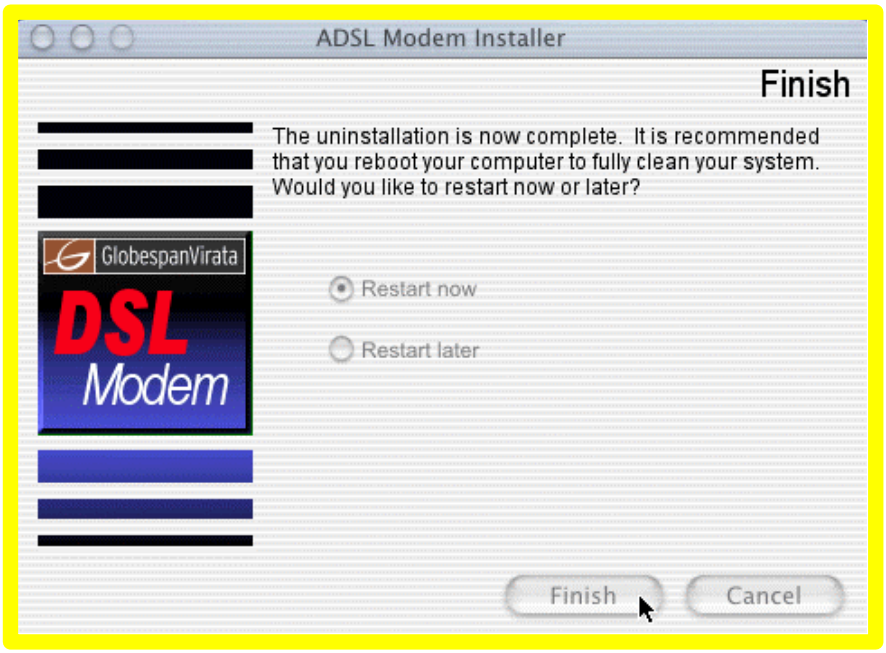
MAC OS X Uninstall

1. Invoke the Uninstaller from the DSL Modem folder (Go→Applications→DSL MODEM→Uninstall).
2. The “Uninstall” screen will appear. Select *Yes, remove the software from my computer* and click **Next**.


ADSL Modem Installer
Uninstall
This program will uninstall the DSL modem driver from your computer. Are you sure you would like to continue?
GlobespanVirata
DSL
Modem
Yes, remove the software from my computer.
No, cancel the uninstallation.
Note: You will need to enter in an administrator password to perform the uninstallation.
Next
Cancel

3. Type the administrator name and password at the “Authenticate” screen and click **OK.**

4. The “Finish” screen will appear. The computer must be restarted to complete the uninstall process. Select *Restart now* and click **Finish**.



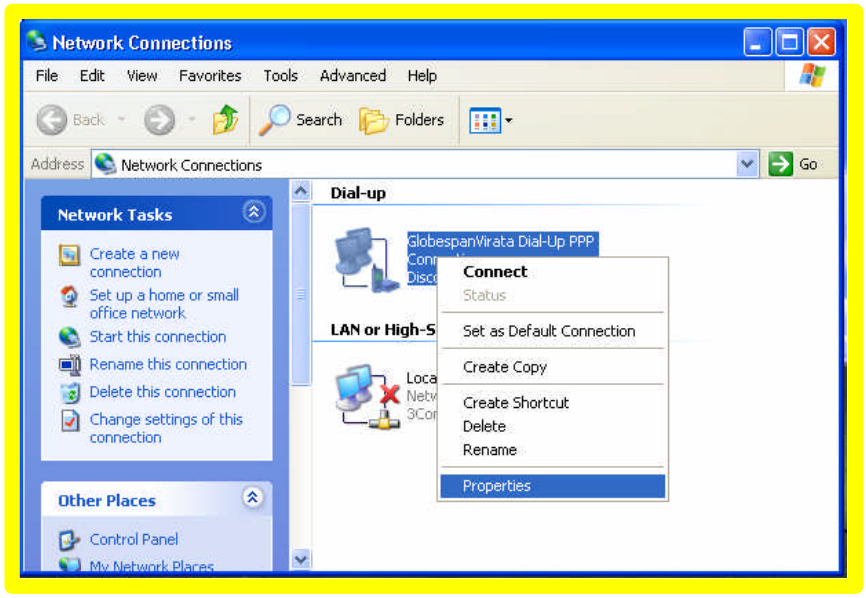
Appendix A: Modifying TCP/IP Networking Options

WAN USB Driver

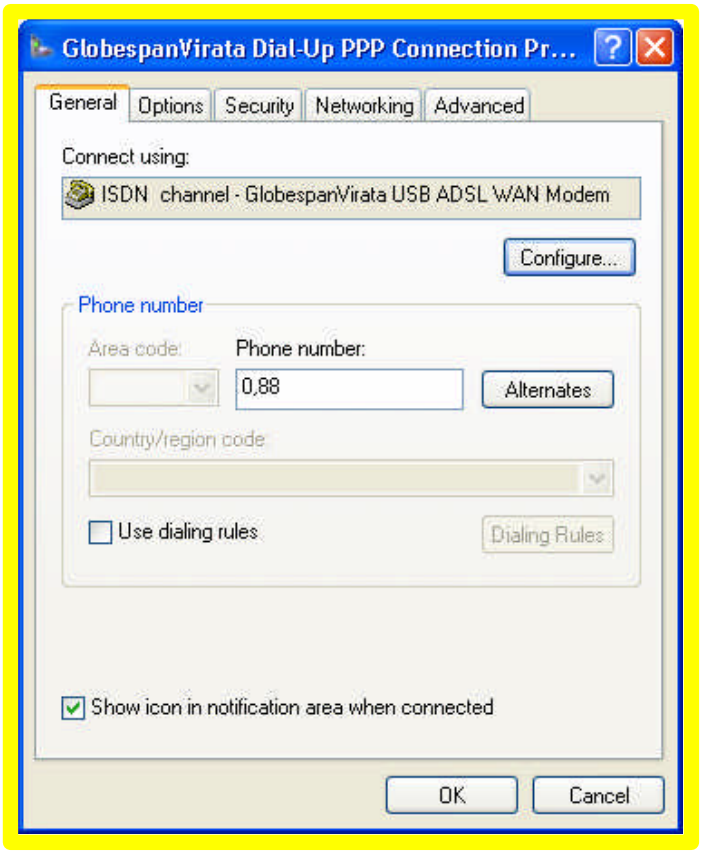
Microsoft Windows XP

TCP/IP settings are set up automatically during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

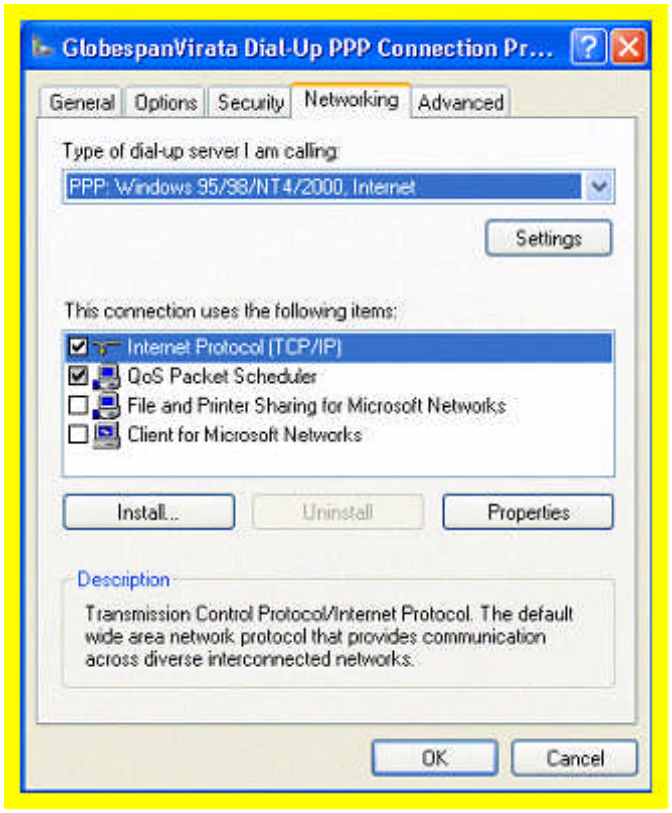
1. From your PC desktop, open the “Control Panel” window (**Start → Control Panel**). Double click the **Network Connections** icon.
2. From the “Network Connections” window, right click the **Dial-Up PPP Connection** icon and click **Properties**.



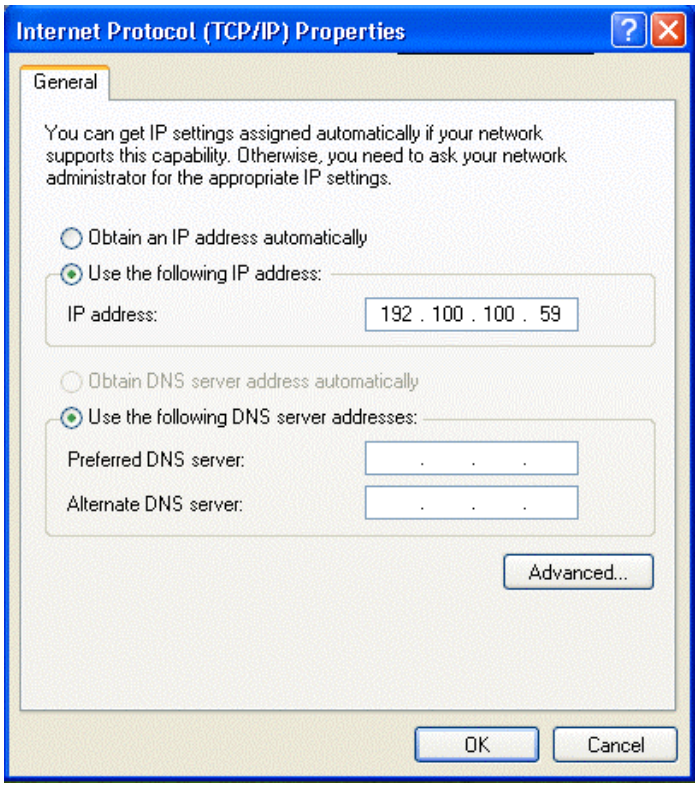
3. The “General” tab of the “ Dial-Up PPP Connection Properties” window allows you to specify a different VPI and VCI, if needed. Contact your DSL service provider before altering this connection information. Enter the VPI and VCI in the Phone Number field (For example: 0,88).



4. From the “Networking” tab of the “ Dial-Up PPP Connection Properties” window, select **Internet Protocol (TCP/IP)** and click **Properties**.



5. Use the “Internet Protocol (TCP/IP) Properties” window to modify the IP address and DNS Server addresses as follows:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 100 . 100 . 59
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

- Change the IP address to a user defined address by selecting *Use the following IP address* (click inside the radio button to the left of it) and typing the address in the space provided
- Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the radio button to the left of it) and typing the addresses in the spaces provided.
- The “Advanced” button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter DNS addresses, WINS addresses and IP security settings.

6. Click **OK** to apply your changes and exit from the “Internet Protocol (TCP/IP) Properties” window.

7. The “ Dial-Up PPP Connection Properties” window will reappear. Click **OK** to end the TCP/IP options modification session.

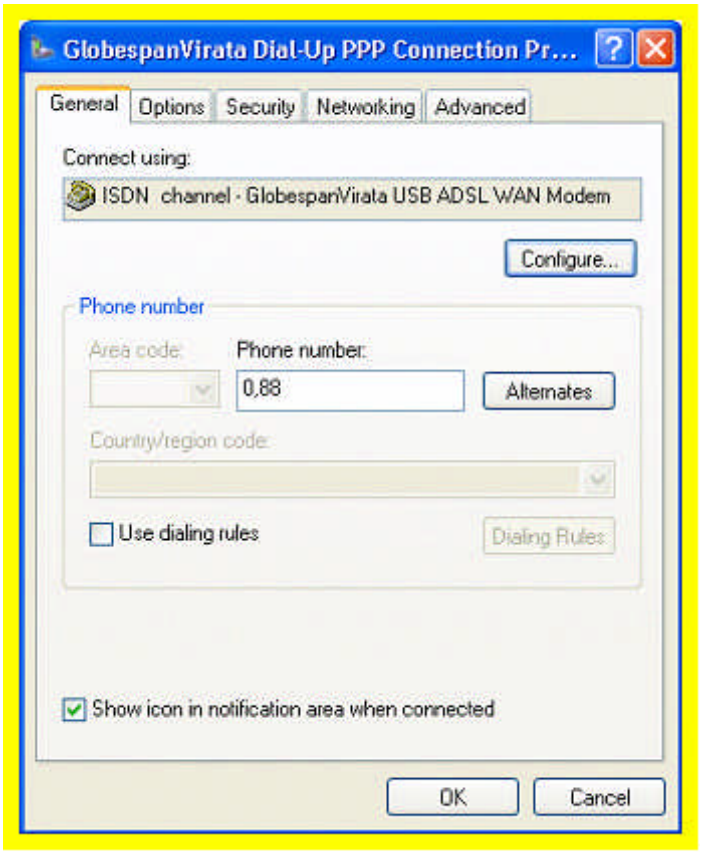
Microsoft Windows 2000

TCP/IP settings are set up automatically during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

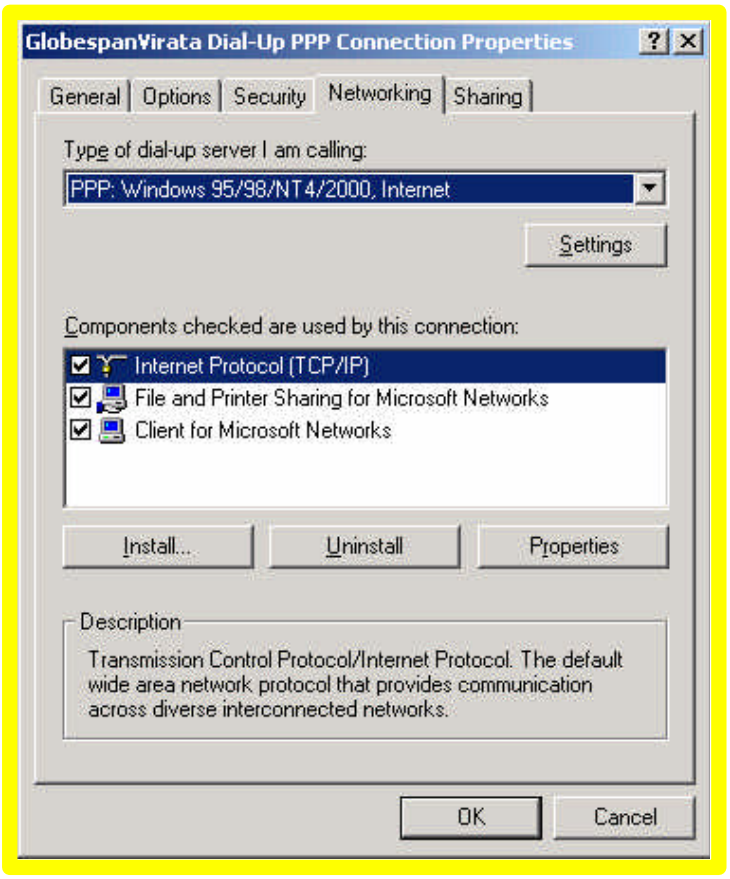
1. From your PC desktop, open the “Control Panel” window (**Start → Settings → Control Panel**). Double click the **Network and Dial-Up Connections** icon.

2. From the “Network and Dial-Up Connections” window, right click the **Dial-Up PPP Connection** icon and click **Properties**.

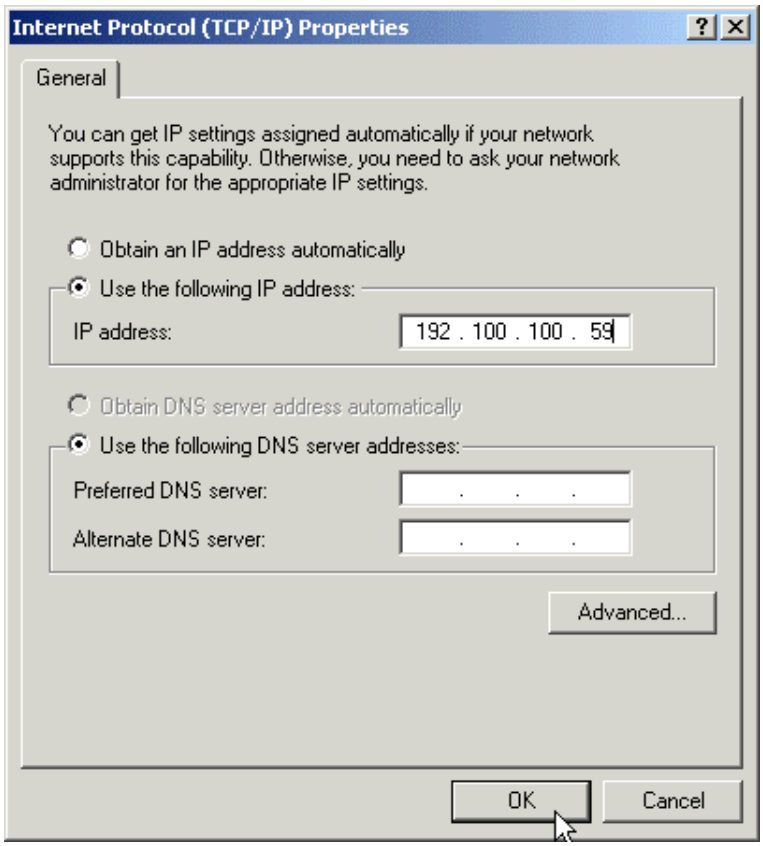
3. The “General” tab of the “ Dial-Up PPP Connection Properties” window allows you to specify a different VPI and VCI, if needed. Contact your DSL service provider before altering this connection information. Enter the VPI and VCI in the Phone Number field (For example: 0,88).



4. From the “Networking” tab of the “ Dial-Up PPP Connection Properties” window, select **Internet Protocol (TCP/IP)** and click **Properties**.



5. Use the “Internet Protocol (TCP/IP) Properties” window to modify the IP address and DNS Server addresses as follows:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 100 . 100 . 59
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

- Change the IP address to a user defined address by selecting *Use the following IP address* (click inside the circle to the left of it) and typing the address in the space provided
- Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.
- The “Advanced” button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter DNS addresses, WINS addresses and IP security settings.

6. Click **OK** to apply your changes and exit from the “Internet Protocol (TCP/IP) Properties” window.

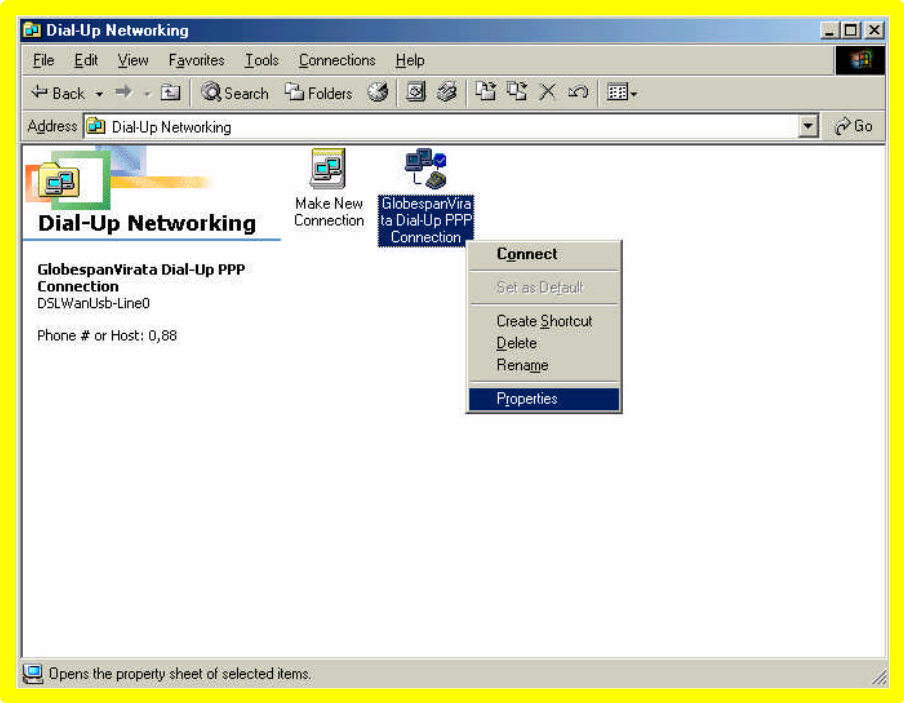
7. The “ Dial-Up PPP Connection Properties” window will reappear. Click **OK** to end the modifying TCP/IP options session.

Microsoft Windows Me

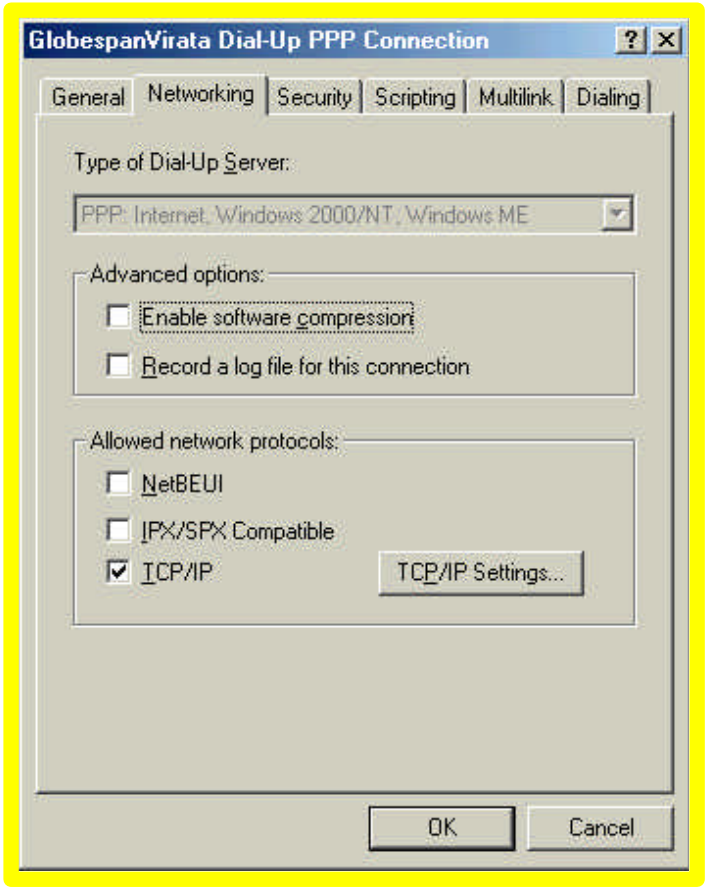
TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, open the Dial-Up Networking window (**Start → Settings → Dial-Up Networking**).

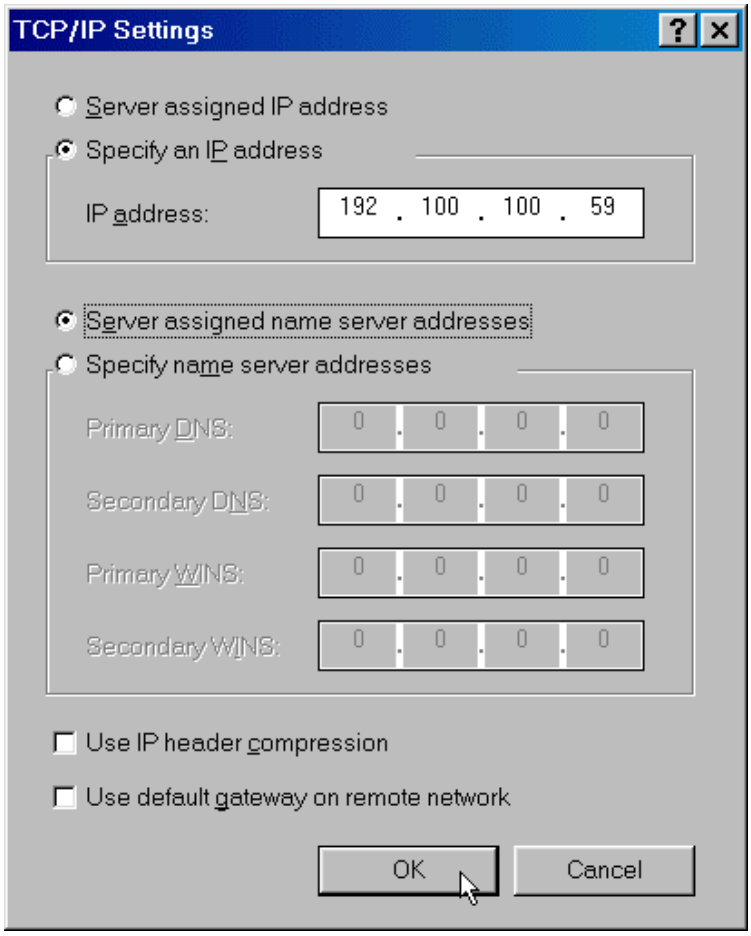
2. From the "Dial-Up Networking" window, right click on the **Dial-Up PPP Connection** icon and click **Properties**.



3. From the “Networking” tab of the “ Dial-Up PPP Connection” window, select **TCP/IP** (marked with a check in the check-box to the left) and click **TCP/IP Settings**.



4. Use the “TCP/IP Settings” window to modify the IP address, Name Server addresses and/or default gateway as follows:



- Change the IP address to a user defined address by selecting *Specify an IP address* (click inside the circle to the left of it) and typing the address in the space provided
- Change the Name Server addresses to user defined addresses by selecting *Specify name server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided
- Change the default gateway by leaving the box blank to the left of *Use default gateway on remote network*.

5. Click **OK** to apply your changes and exit from the “TCP/IP Settings” window.

6. The “ Dial-Up PPP Connection” window will be redisplayed. Click **OK** to end the modifying TCP/IP options session.

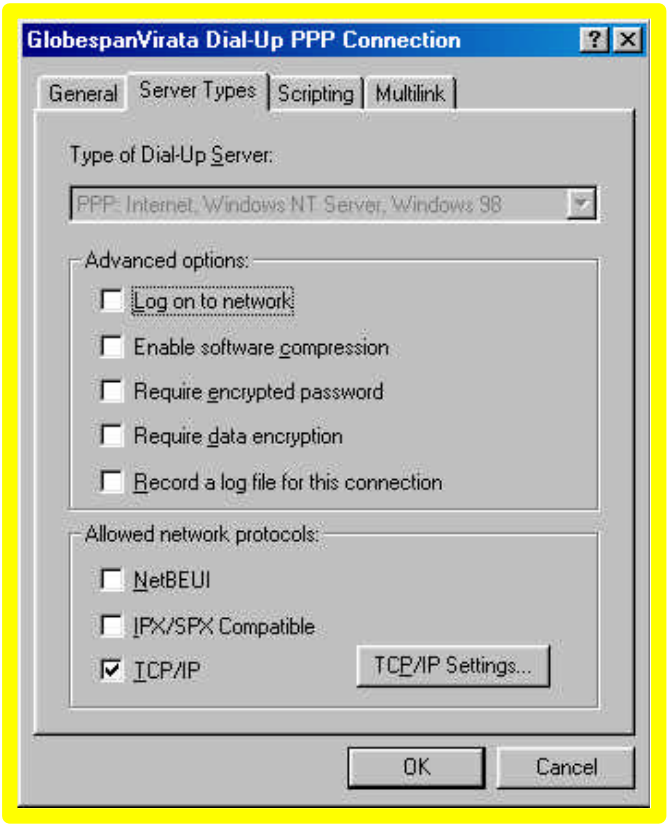
Microsoft Windows 98 and Windows 98 SE

TCP/IP settings are set up automatically during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

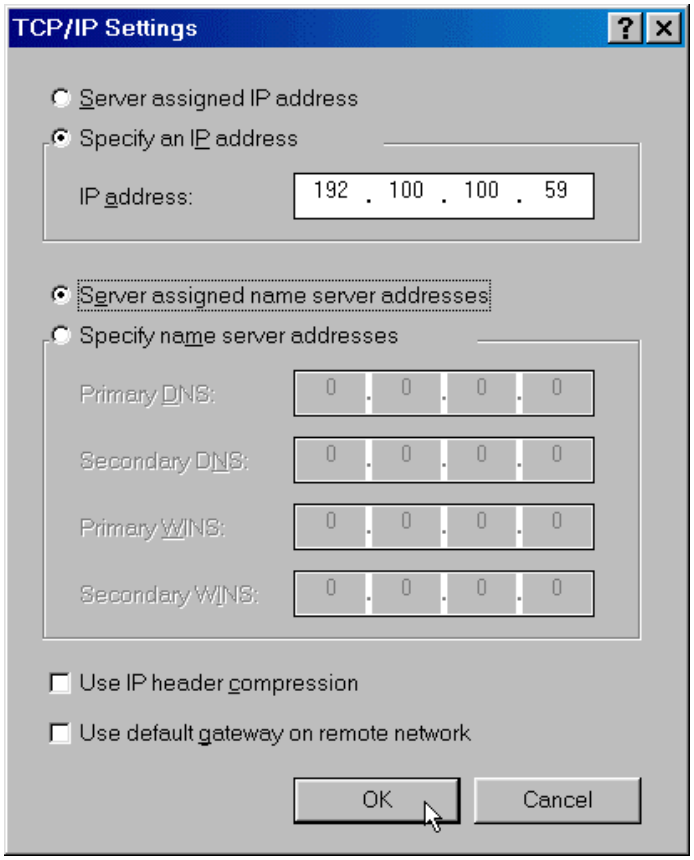
1. From your PC desktop, open the “Control Panel” window (**Start → Settings → Control Panel**). Double click the **Dial-Up Networking** icon.

2. From the “Dial-Up Networking” window, right click on the **Dial-Up PPP Connection** icon and click **Properties**.

3. From the “Server Types” tab of the “ Dial-Up PPP Connection” window, select **TCP/IP** by checking the check to the left, and click **TCP/IP Settings**.



4. Use the “TCP/IP Settings” window to modify the IP address, Name Server addresses and/or default gateway as follows:



- Change the IP address to a user defined address by selecting *Specify an IP address* (click inside the radio button to the left of it) and typing the address in the space provided
- Change the Name Server addresses to user defined addresses by selecting *Specify name server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided
- Change the default gateway by leaving the box blank to the left of *Use default gateway on remote network*.

5. Click **OK** to apply your changes and exit from the “TCP/IP Settings” window.

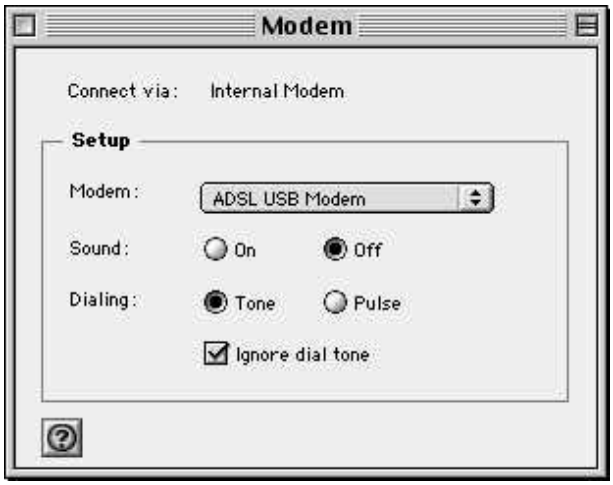
6. The “ Dial-Up PPP Connection” window will be redisplayed. Click **OK** to end the TCP/IP options modification session.

MAC OS 9.x

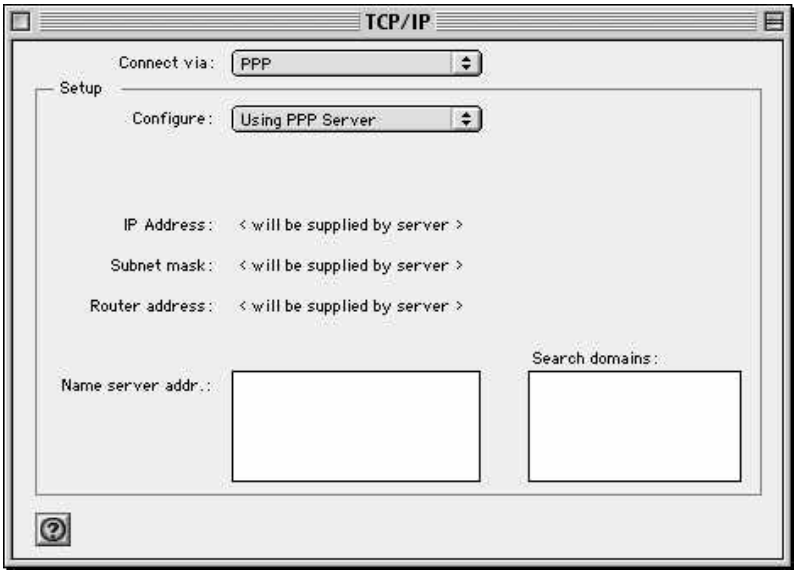
If you have not done so yet, connect the ATU-R305 ADSL Modem to the computer using the proper USB device cable. Connect the DSL line to the ATU-R305 ADSL Modem, too.

TCP/IP settings are set up automatically during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. Click on the **Apple** icon ( ), then select **Control Panels → Modem**
2. Make sure that the *ADSL USB Modem* appears in the **Modem:** drop-down list. You can modify the dialup settings such as dialing sound and type.

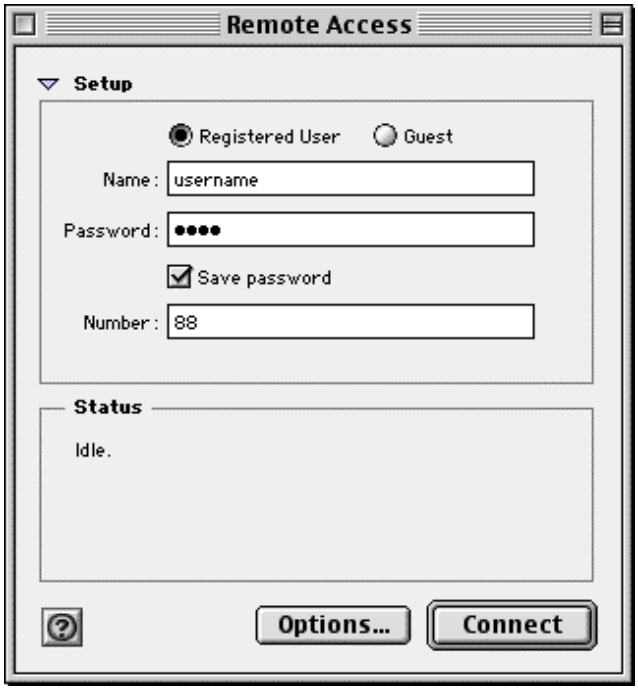


3. Close the “Modem” window (click on the top left corner). You will be prompted to save the current configuration. Click **Save**.
4. Next, click again on the **Apple** icon ( ), and then select **Control Panels → TCP/IP**.
5. The “TCP/IP” window will appear.



- Make sure that **PPP** is selected in the *Connect via:* drop-down list.
- The *Configure:* drop-down list should show **Using DHCP Server**.

6. Close the "TCP/IP" window. You will be prompted to save the current configuration. Click **Save**.
7. Click on the **Apple** icon ( ), and then select **Control Panels → Remote Access**.
8. The "Remote Access" window lets you set up the remote login parameters.



Note: If you do not see the *Name* and *Password* fields, click on the small triangle to the left of the word **Setup**.

- Enter your userid in the *Name* field.
- Type in your password in the *Password* field.
- Choose whether or not to have your password saved by checking or unchecking the *Save Password* check box.
- Enter any number in the *Number* field.
- You may wish to use the **Options** button to set up some additional connection and protocol settings, or accept the default. Click **OK** when done with the "Options" window.

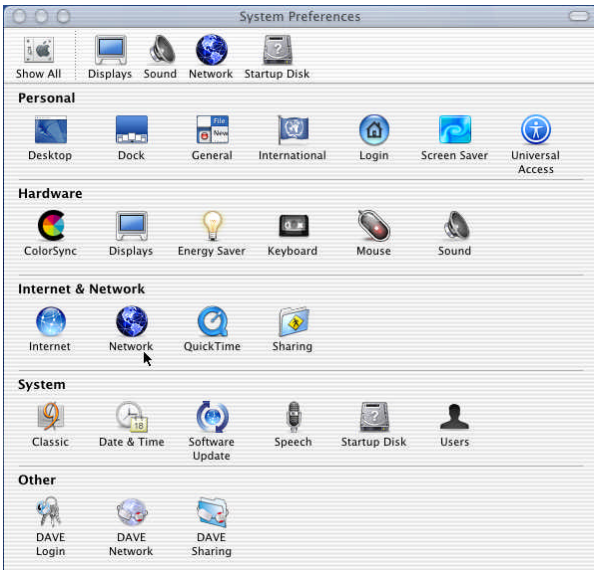
9. Close the "Remote Access" window. You will be prompted to save the current configuration. Click **Save**.

MAC OS X

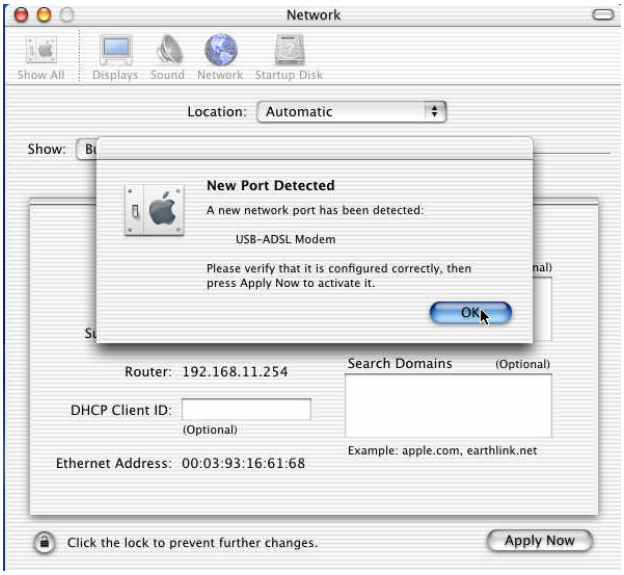
If you have not done so yet, connect the ATU-R305 ADSL Modem to the computer using the proper USB device cable. Connect the DSL line to the ATU-R305 ADSL Modem, too.

TCP/IP settings are set up automatically during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

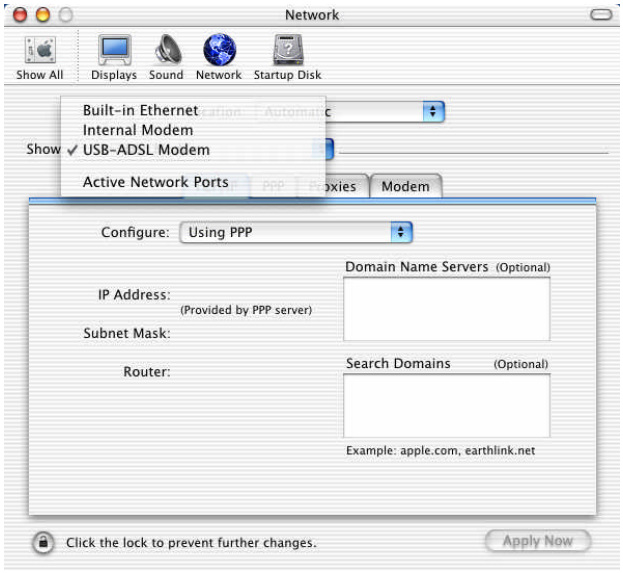
1. Open **System Preferences** and select **Network.**



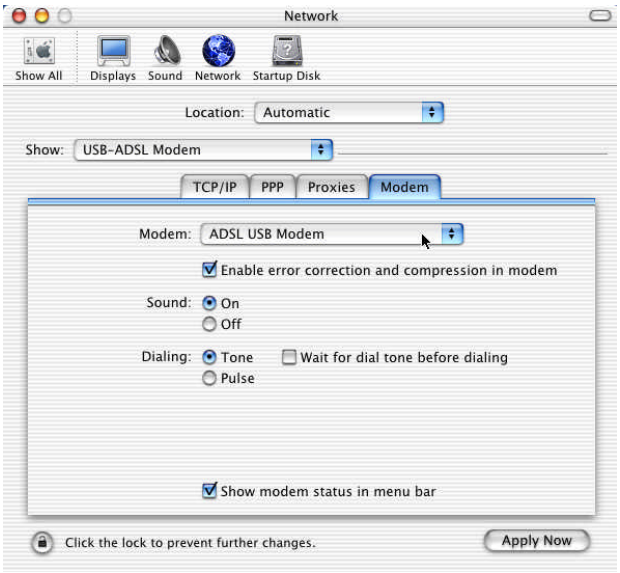
2. A window should pop up indicating that a new port has been detected. It will be named **USB-ADSL Modem.** Click **OK.**



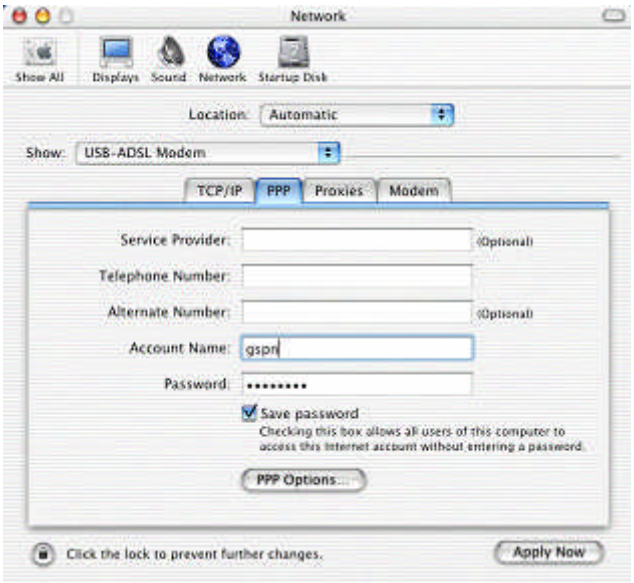
3. From the **Show** pull down menu, select the new port, **USB-ADSL Modem.**



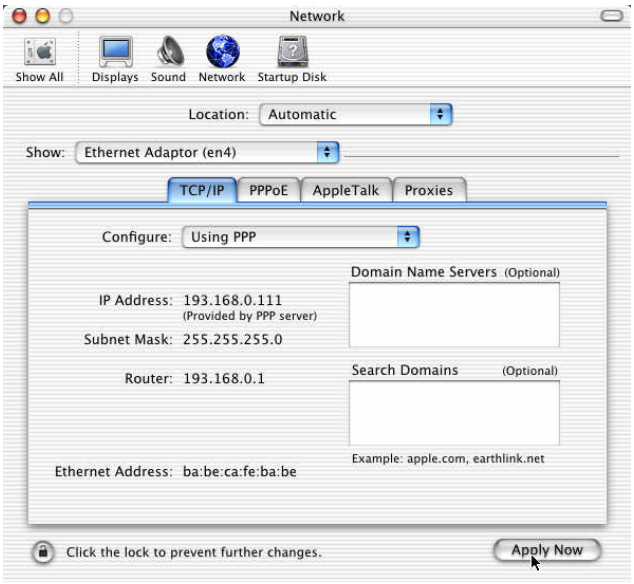
4. Select the **Modem** tab. In the **Modem** pull down menu, select **ADSL USB Modem.** Uncheck **Wait for dial tone before dialing.** Check **Show Modem Status in menu bar.**



5. Select the **PPP** tab. Enter your username (account name). If you want to make your password permanently saved, enter it and check **Save password.** Configure any other **PPP Options** as desired.



6. Select the **TCP/IP** tab and select the way you would like to obtain your IP address. The recommended way is **Configure Using PPP.**

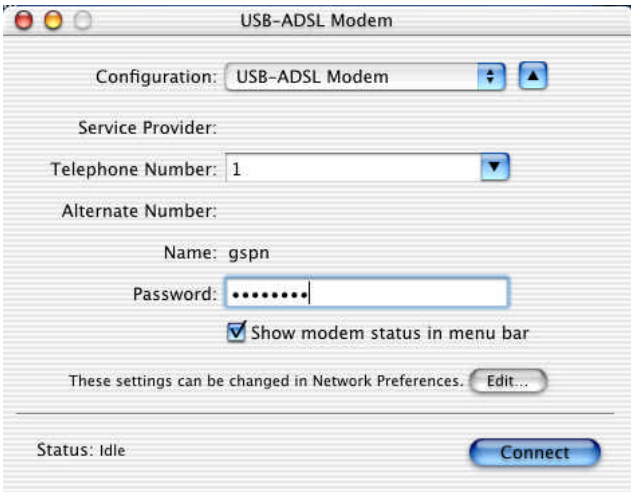


7. Click **Apply Now.** Close the System Preferences application. The installation and configuration is now complete.

Establishing a Connection

1. Open the Internet Connection application (which looks like a modem dialer) by clicking the icon at the top right side of the screen and selecting **Open Internet Connection** from the menu.

2. In the **Configuration** drop down menu, select your adapter's port **USB- ADSL Modem** and fill in the password if it was not provided in Step 5 above and click **Connect.**



3. The Internet Connection application will display the progress of the connection. Upon completion, you will be connected to the Internet. The **Disconnect** button may be used to remove the connection, effectively disconnecting from the Internet.

LAN USB Driver

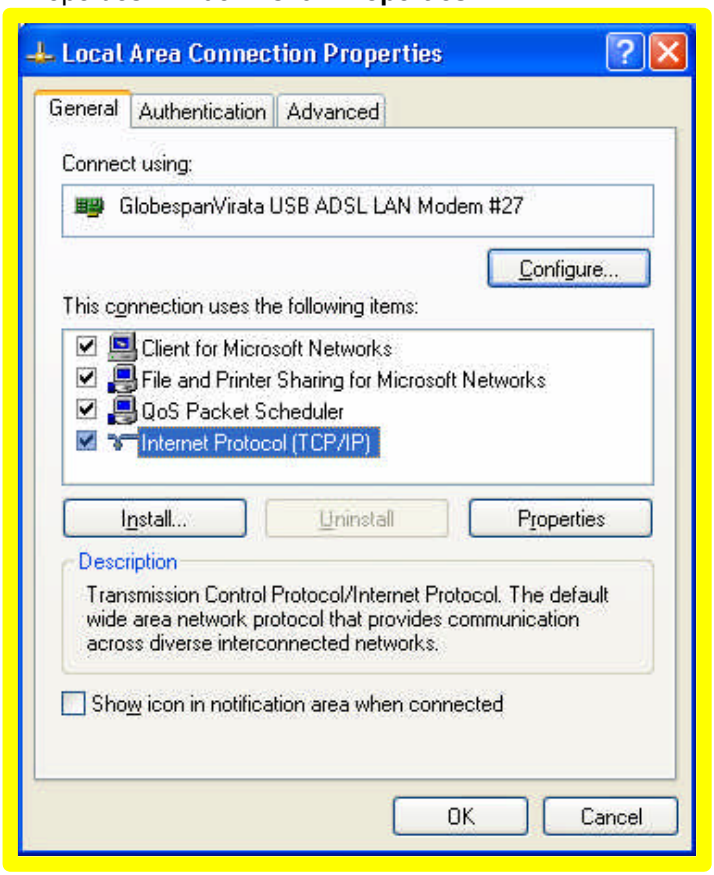
Microsoft Windows XP

TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

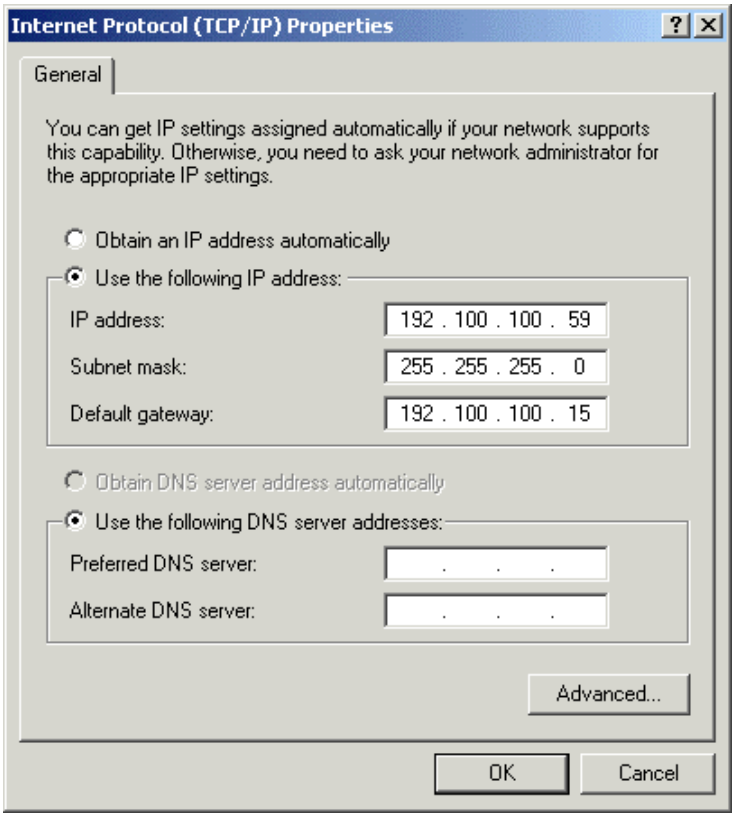
1. From your PC desktop, open the “Control Panel” window (**Start → Control Panel**). Double click the **Network Connections** icon.

2. Double click the **Local Area Connection** icon from the “Network Connections” window.

3. Select **Internet Protocol (TCP/IP)** from the “General” tab of the “Local Area Connection Properties” window. Click **Properties**.



4. The “Internet Protocol (TCP/IP) Properties” window is used to modify the IP addresses and DNS Server addresses as follows:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 100 . 100 . 59
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
192 . 100 . 100 . 15
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

- Change the IP address to a user defined address by selecting *Use the following IP address* option (click inside the circle to the left of it) and typing the addresses in the spaces provided

- Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.

- The Advanced button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter IP settings, DNS server addresses, WINS addresses, IP security options, and TCP/IP filtering options.

5. Click **OK** to apply your changes and exit from the “Internet Protocol (TCP/IP) Properties” window.

6. The “Local Area Connection Properties” window will reappear. Click **OK** to end the TCP/IP options modification session.

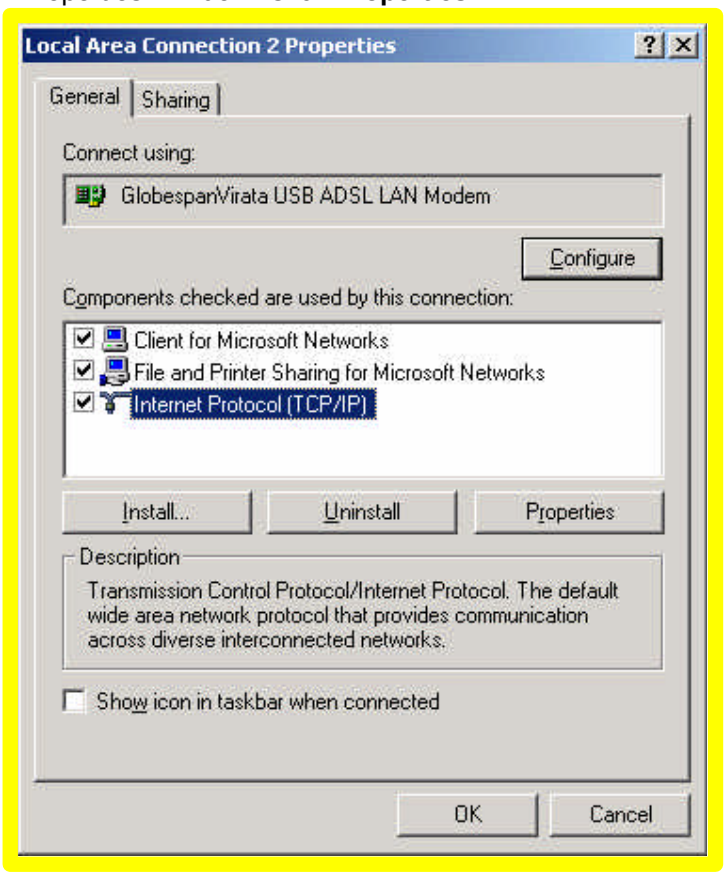
Microsoft Windows 2000

TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

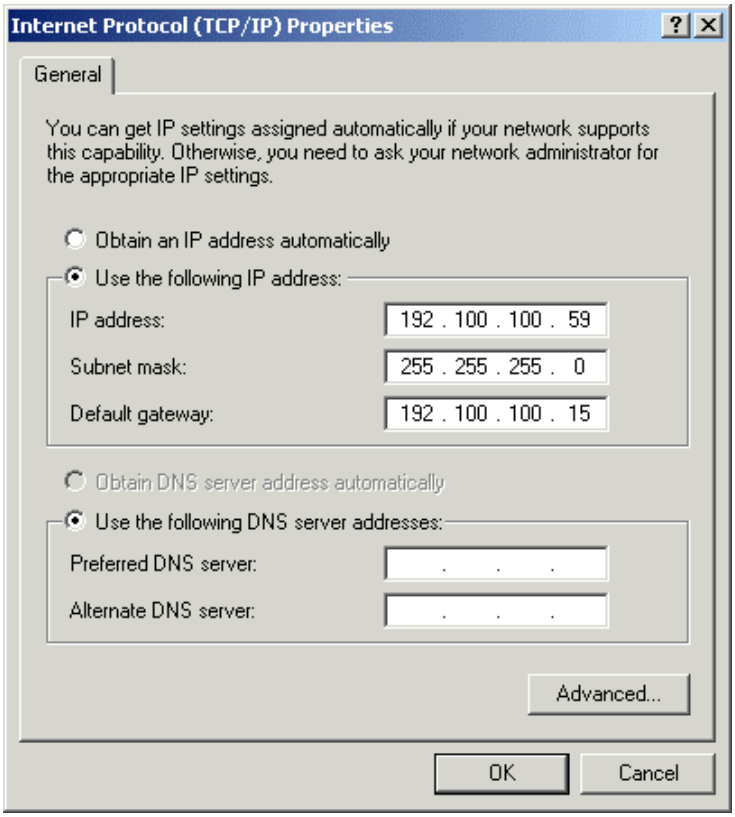
1. From your PC desktop, open the “Control Panel” window (**Start → Settings → Control Panel**). Double click the **Network and Dial-Up Connections** icon.

2. Double click the **Local Area Connection** icon from the “Network and Dial-Up Connections” window.

3. Select **Internet Protocol (TCP/IP)** from the “General” tab of the “Local Area Connection Properties” window. Click **Properties**.



4. Use the “Internet Protocol (TCP/IP) Properties” window to modify the IP addresses and DNS Server addresses as follows:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 100 . 100 . 59
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
192 . 100 . 100 . 15
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

- Change the IP address to a user defined address by selecting *Use the following IP address* option (click inside the circle to the left of it) and typing the addresses in the spaces provided

- Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.

- The Advanced button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter IP settings, DNS server addresses, WINS addresses, IP security options, and TCP/IP filtering options.

5. Click **OK** to apply your changes and exit from the “Internet Protocol (TCP/IP) Properties” window.

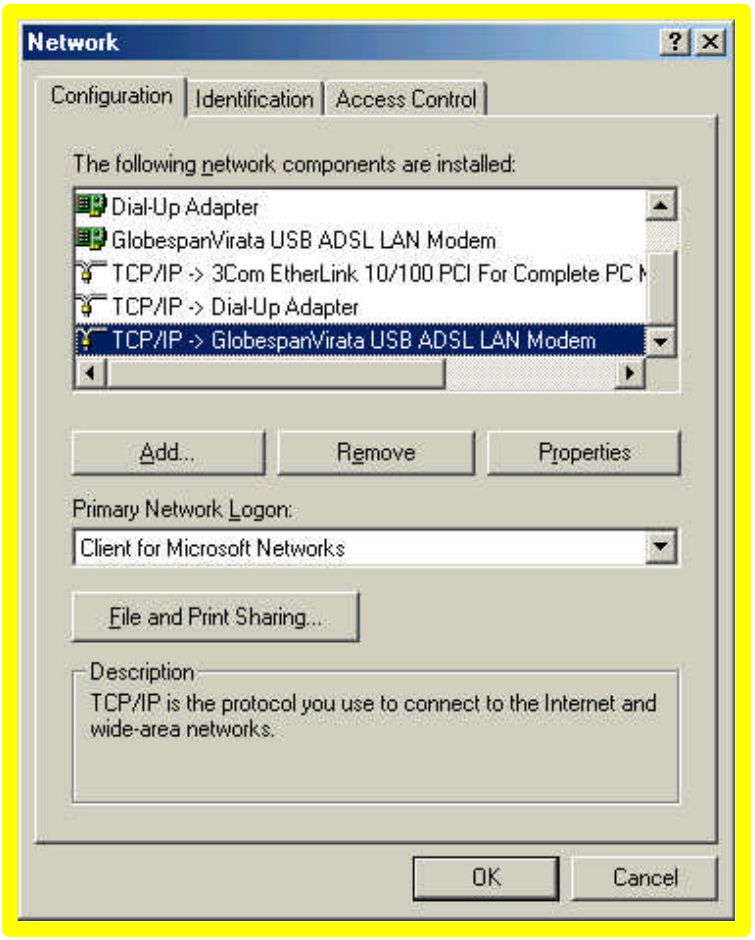
6. The “Local Area Connection Properties” window will reappear. Click **OK** to end the TCP/IP options modification session.

Microsoft Windows Me

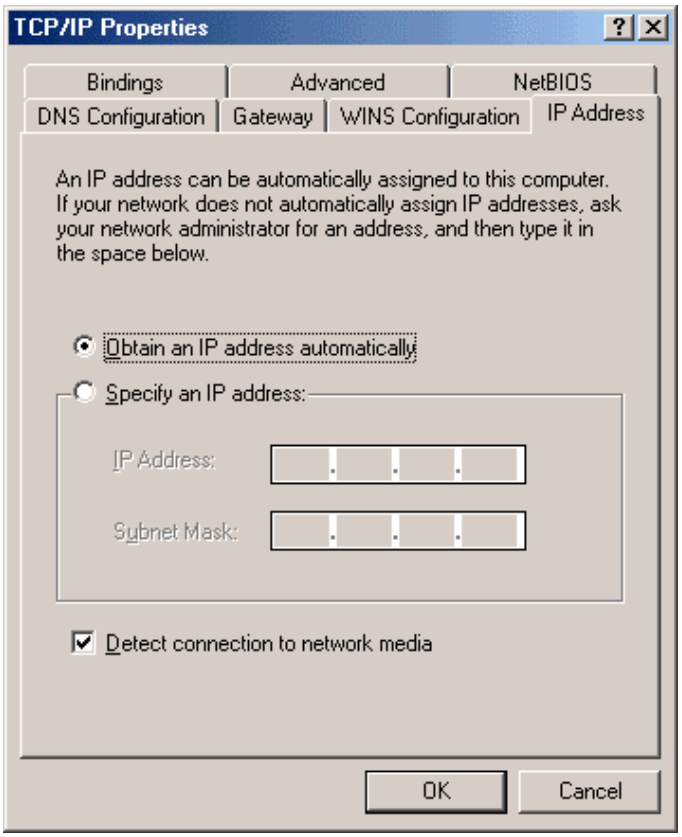
TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, open the “Control Panel” window (**Start → Settings → Control Panel**). Double click on the **Network** icon.

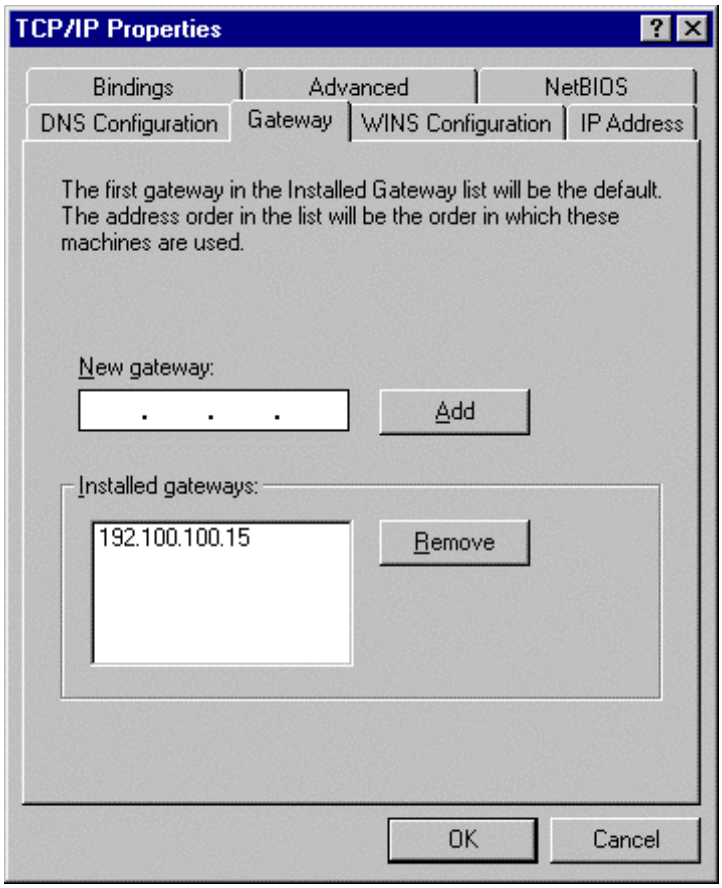
2. Select **TCP/IP - > USB ADSL LAN Modem** from the “Configuration” tab of the “Network” window. Click **Properties**.



3. From the “IP Address” tab of the “TCP/IP Properties” window, select either the *Obtain an IP address Automatically* or *Specify an IP Address* option, depending on your network setup. If you select *Specify an IP address*, type the *IP Address* and *Subnet Mask* in the spaces provided. Consult with your network administrator to determine which option best suits your individual needs.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
Detect connection to network media
OK
Cancel

4. The “Gateway” tab allows you to add or remove gateways. Consult with your network administrator to determine the appropriate addresses for your individual needs.



- To add a new gateway, type the address in the *New gateway* field and click **Add**. The new gateway will appear in the *Installed gateways* list.

- To remove a previously installed gateway, highlight the entry to be removed in the *Installed gateways* list and click **Remove**. The gateway will no longer appear in the *Installed gateways* list.

5. Click **OK** to apply your changes and exit from the “TCP/IP Properties” window.

6. The “Network” window will reappear. Click **OK** to end the TCP/IP options modification session.

7. If you have made changes to TCP/IP properties, you will be asked to restart/reboot your PC. Click **Yes**, and your PC will restart.

Microsoft Windows 98 and Windows 98 SE

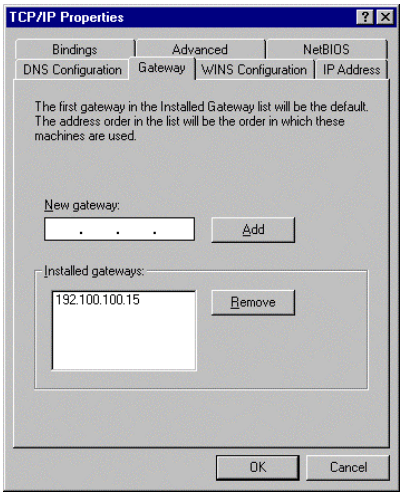
TCP/IP settings are set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, open the "Control Panel" window (**Start → Settings → Control Panel**). Double click the **Network** icon.

2. Highlight **TCP/IP -> USB ADSL LAN Modem** from the list of installed network components in the "Configuration" tab of the "Network" window; click **Properties**.

3. From the "IP Address" tab of the "TCP/IP Properties" window, select either the *Obtain an IP address Automatically* or *Specify an IP Address* option, depending on your network setup. If you select *Specify an IP address*, type the *IP Address* and *Subnet Mask* in the spaces provided. Consult with your network administrator to determine which option best suits your individual needs.

4. The "Gateway" tab allows you to add or remove gateways. Consult with your network administrator to determine the appropriate addresses for your individual needs.



- To add a new gateway, type the address in the *New gateway* field and click **Add**. The new gateway will appear in the *Installed gateways* list.

- To remove a previously installed gateway, highlight the entry to be removed in the *Installed gateways* list and click **Remove**. The gateway will no longer appear in the *Installed gateways* list.

5. Click **OK** to apply your changes and exit from the "TCP/IP Properties" window.

6. The "Network" window will reappear. Click **OK** to end the TCP/IP options modification session.

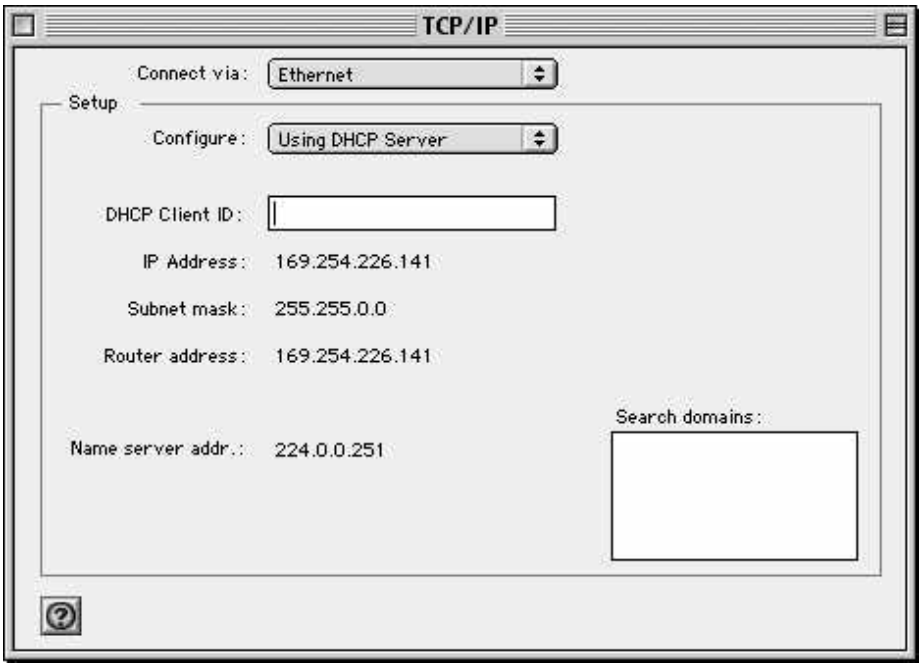
7. If you have made changes to TCP/IP properties, you will be asked to restart/reboot your PC. Click **Yes**, and your PC will restart.

MAC OS 9.x

If you have not done so yet, connect the ATU-R305 ADSL Modem to the computer using the proper USB device cable. Connect the DSL line to the ATU-R305 ADSL Modem, too.

TCP/IP settings are set up automatically during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. Click on the **Apple** icon ( ), and then select **Control Panels** → **TCP/IP**.
2. The "TCP/IP" window will appear.



- Make sure that **Ethernet** is selected in the *Connect via:* drop-down list.
- The *Configure:* drop-down list should show **Using DHCP Server**.

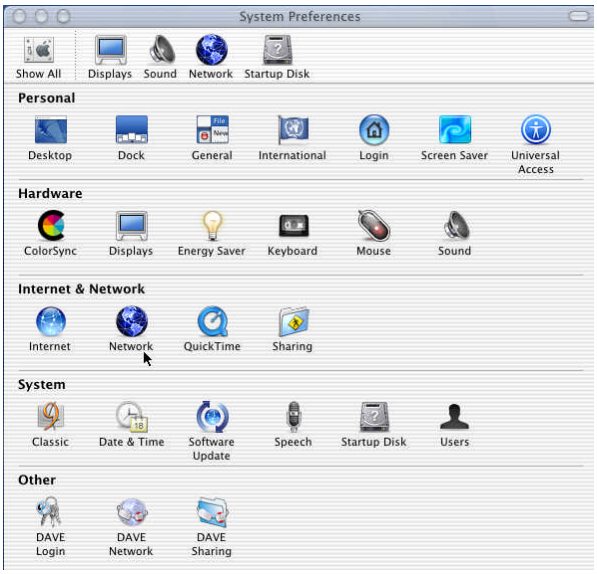
3. Close the "TCP/IP" window. You will be prompted to save the current configuration. Click **Save**.

MAC OS X

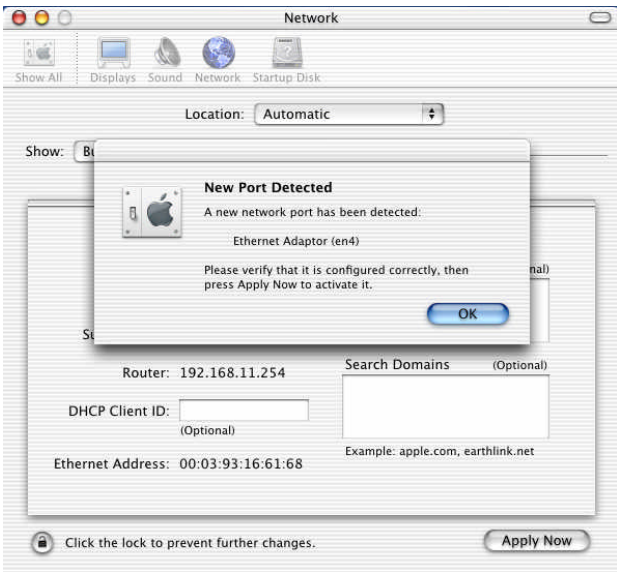
If you have not done so yet, connect the ATU-R305 ADSL Modem to the computer using the proper USB device cable. Connect the DSL line to the ATU-R305 ADSL Modem, too.

TCP/IP settings are set up automatically during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

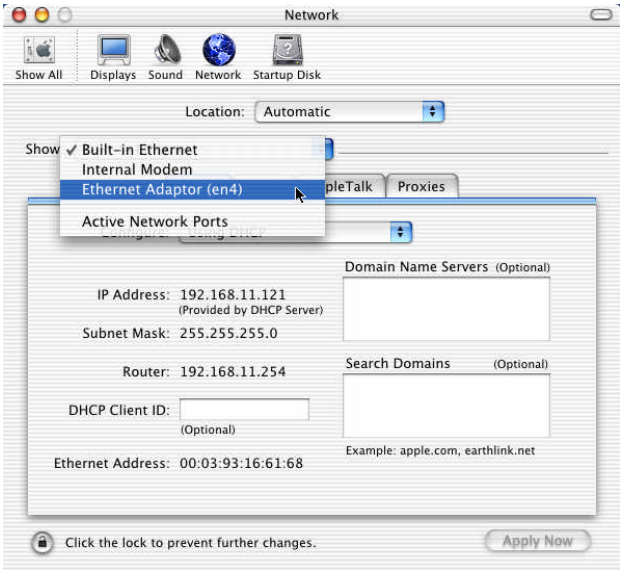
1. Open **System Preferences** and select **Network.**



2. A window should pop up indicating that a new port has been detected. It will be a port of type "Ethernet Adapter" and its interface name "en<n>" will be displayed as well, e.g., "Ethernet Adapter en<n>." Click **OK.**



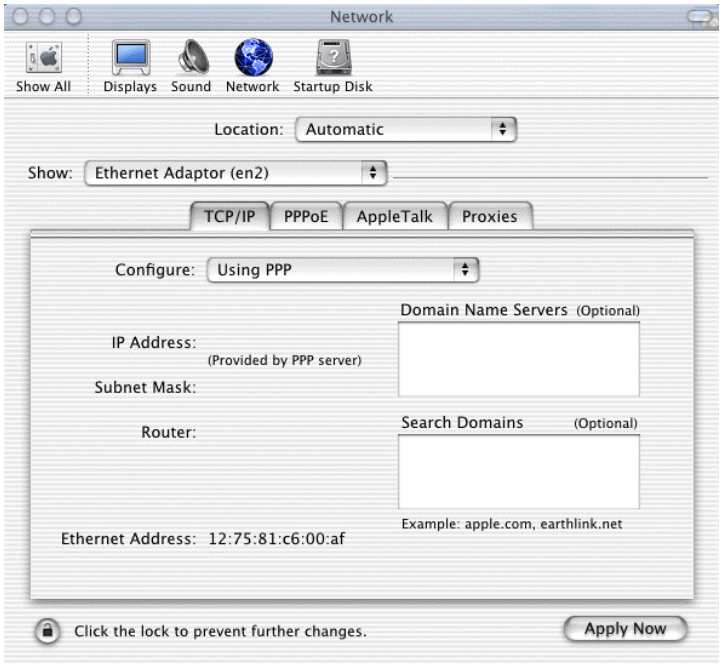
3. From the **Show** pull down menu, select the new port, **Ethernet Adapter en<n>.**



4. The next steps apply if you want to configure using PPPoE (RFC 2516). If you want to use Ethernet over ATM (RFC 1483), go to “Modifying the MAC OS X TCP/IP Networking Options for Ethernet over ATM” on page 55.

5. Select the **PPPoE** tab and select **Connect using PPPoE**.

6. Select the **TCP/IP** tab and select the way you would like to obtain your IP address. The recommended way is **Configure Using PPP.**



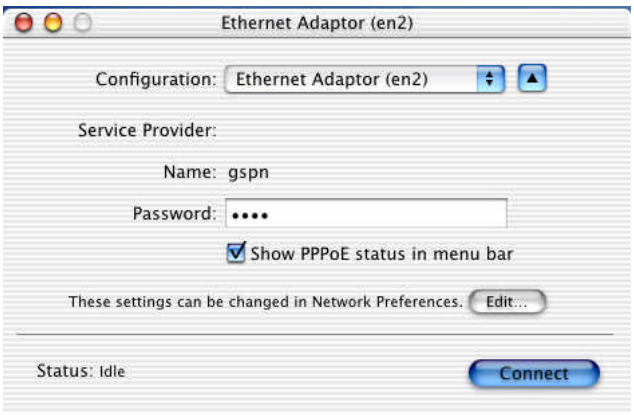
7. If indicated by your ISP, enter any proxies needed at the Proxies tab.

8. Click **Apply Now** to apply the changes. Close the System Preferences application. The installation and configuration is now complete.

Establishing a Connection

1. Open the Internet Connection application (which looks like a modem dialer) by clicking the icon at the top right side of the screen and selecting **Open Internet Connection** from the menu.

2. In the **Configuration** drop down menu, select your adapter's port **Ethernet Adapter en<n>** and fill in the password if it was not provided in Step 5 above; click **Connect.**



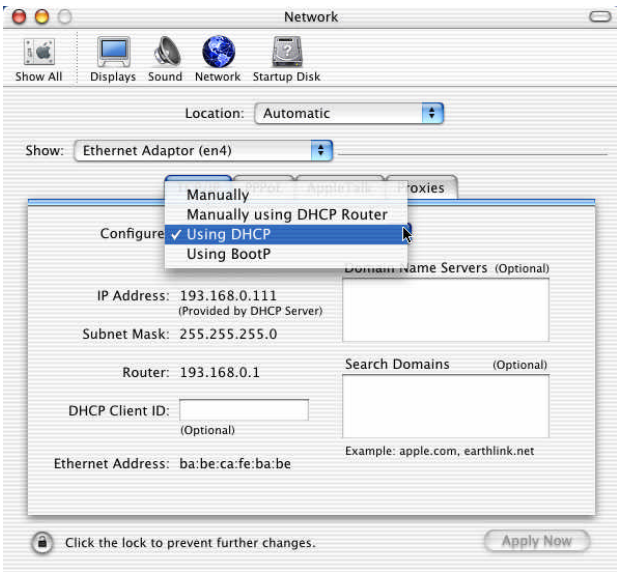
3. The Internet Connection application will display the progress of the connection. Upon completion, you will be connected to the Internet. The **Disconnect** button may be used to remove the connection, effectively disconnecting from the Internet.

Modifying the MAC OS X TCP/IP Networking Options for Ethernet over ATM

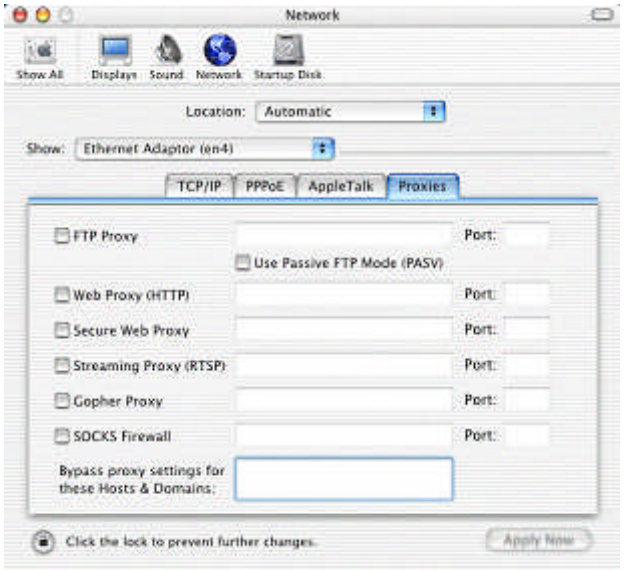
This section allows you to configure to use Ethernet over ATM (RFC 1483). If you want to use PPPoE (RFC 2516), go to "MAC OS X," on page 51.

This is a continuation of the LAN USB Driver directions. You should have already performed Steps 1 through 3 of "MAC OS X," starting on page 51.

1. Select the **TCP/IP** tab and indicate the way you would like to obtain an IP address. In the likely event that a DHCP server is available from your provider, select that option for automatic IP address configuration.



2. If indicated by your ISP, enter any proxies needed at the **Proxies** tab. The **AppleTalk** and **PPPoE** tabs should be left unchanged, i.e., the features disabled.



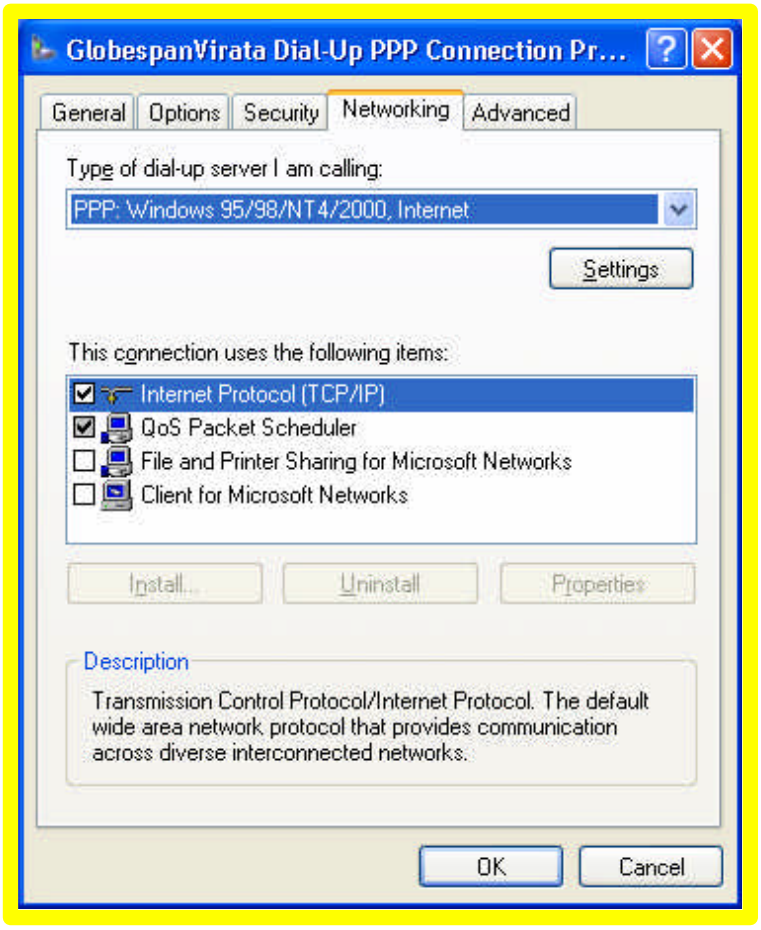
3. Click **Apply Now.** Close the System Preferences application. The installation and configuration is now complete.

ATM USB Driver

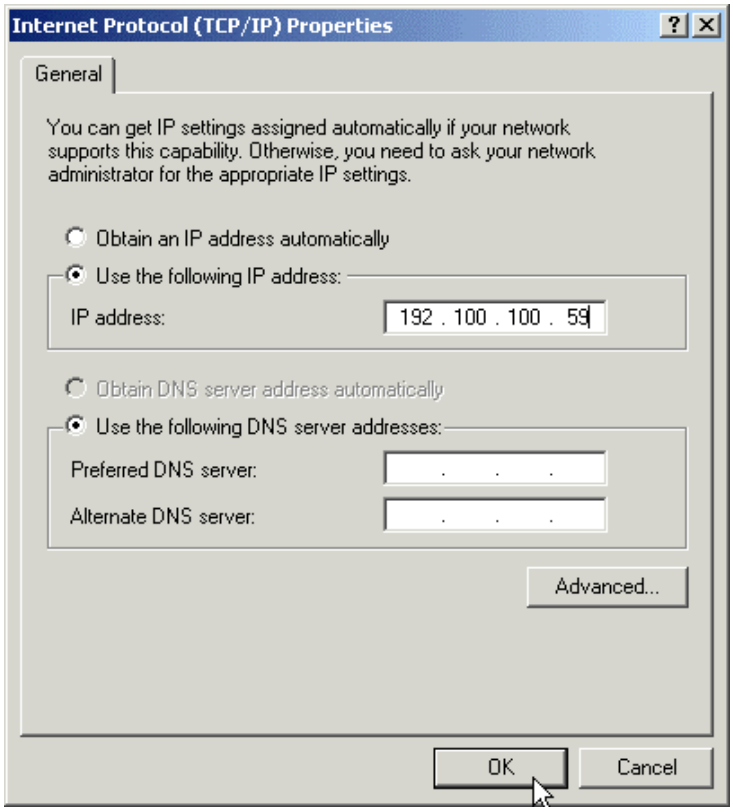
Microsoft Windows XP

TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, open the "Control Panel" window (**Start → Control Panel**). Double click the **Network Connections** icon.
2. From the "Network Connections" window, right click on the **Dial-Up PPP Connection** icon and click **Properties**.
3. From the "Networking" tab of the " Dial-Up PPP Connection Properties" window, select **Internet Protocol (TCP/IP)** and click **Properties**



4. The “Internet Protocol (TCP/IP) Properties” window is used to modify the IP address and DNS Server addresses as follows:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 100 . 100 . 59
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

- Change the IP address to a user defined address by selecting *Use the following IP address* (click inside the circle to the left of it) and typing the address in the space provided

- Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.

- The Advanced button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter IP settings, DNS server addresses, WINS addresses, IP security options, and TCP/IP filtering options.

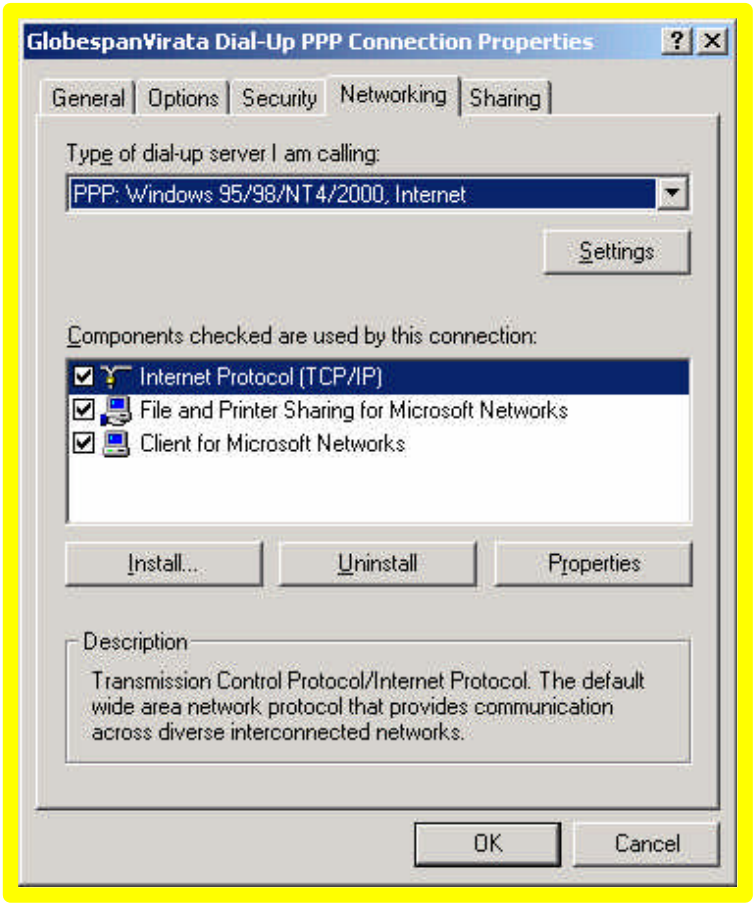
5. Click **OK** to apply your changes and exit from the “Internet Protocol (TCP/IP) Properties” window.

6. The “ Dial-Up PPP Connection Properties” window will reappear. Click **OK** to end the modifying TCP/IP options session.

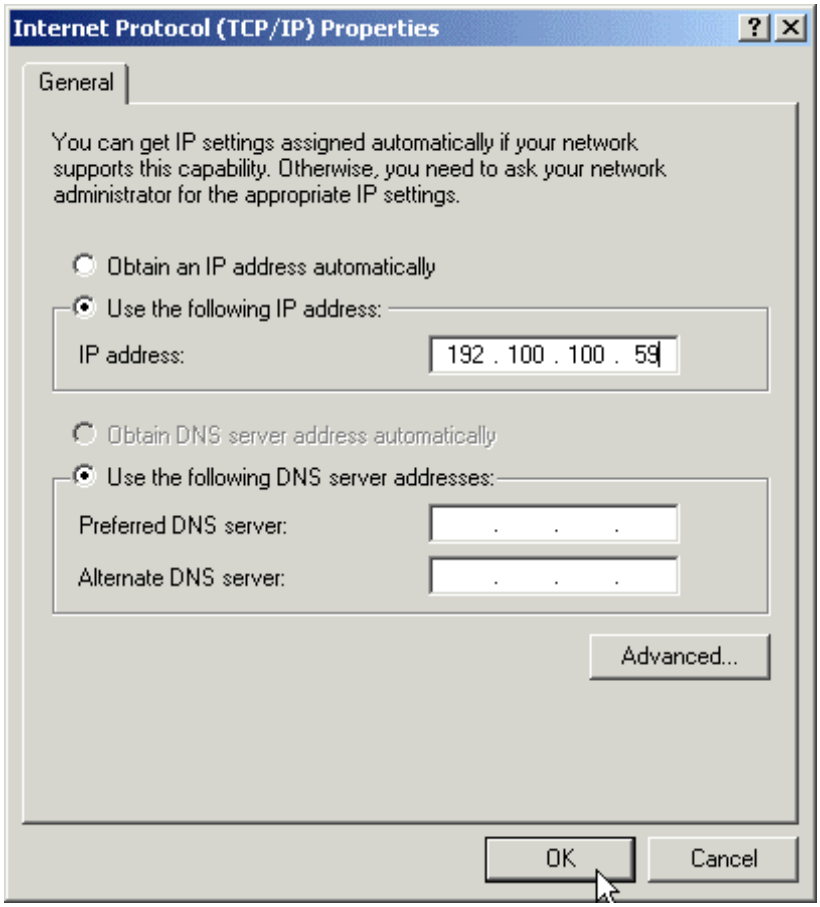
Microsoft Windows 2000

TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, open the "Control Panel" window (**Start → Settings → Control Panel**). Double click the **Network and Dial-Up Connections** icon.
2. From the "Network and Dial-Up Connections" window, right click on the **Dial-Up PPP Connection** icon and click **Properties**.
3. From the "Networking" tab of the " Dial-Up PPP Connection Properties" window, select **Internet Protocol (TCP/IP)** and click **Properties**.



4. The “Internet Protocol (TCP/IP) Properties” window is used to modify the IP address and DNS Server addresses as follows:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 100 . 100 . 59
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

- Change the IP address to a user defined address by selecting *Use the following IP address* (click inside the circle to the left of it) and typing the address in the space provided

- Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.

- The Advanced button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter IP settings, DNS server addresses, WINS addresses, IP security options, and TCP/IP filtering options.

5. Click **OK** to apply your changes and exit from the “Internet Protocol (TCP/IP) Properties” window.

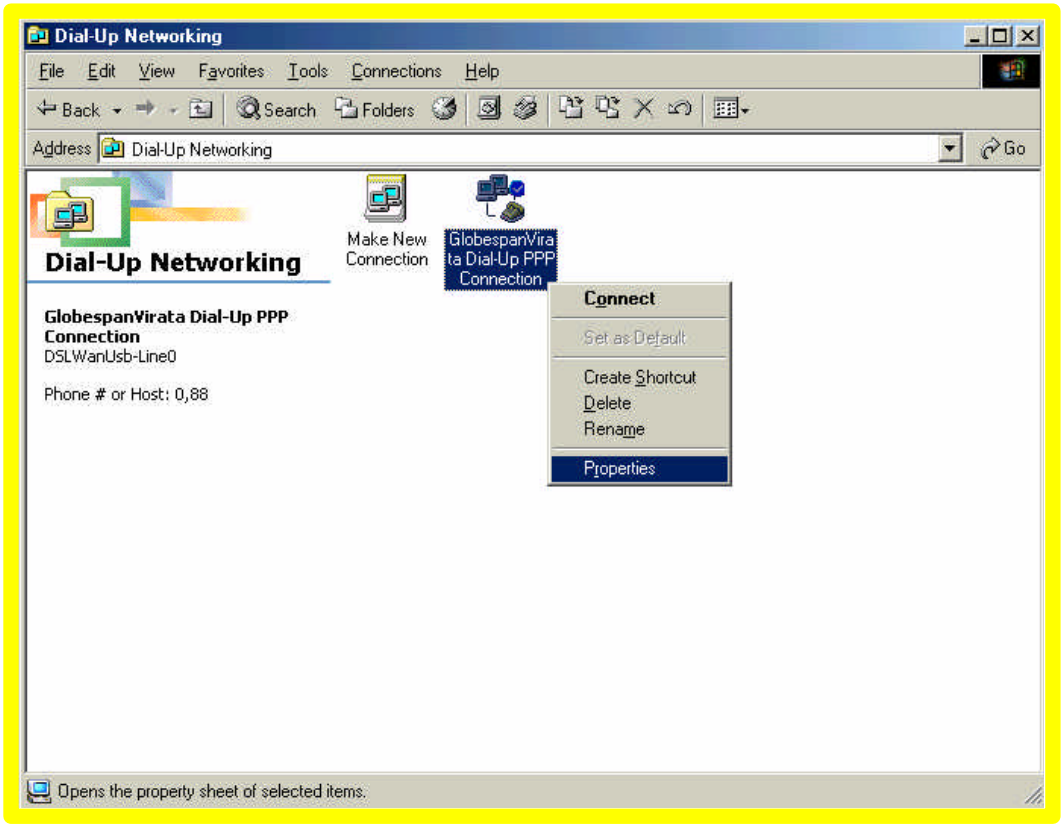
6. The “ Dial-Up PPP Connection Properties” window will reappear. Click **OK** to end the modifying TCP/IP options session.

Microsoft Windows Me

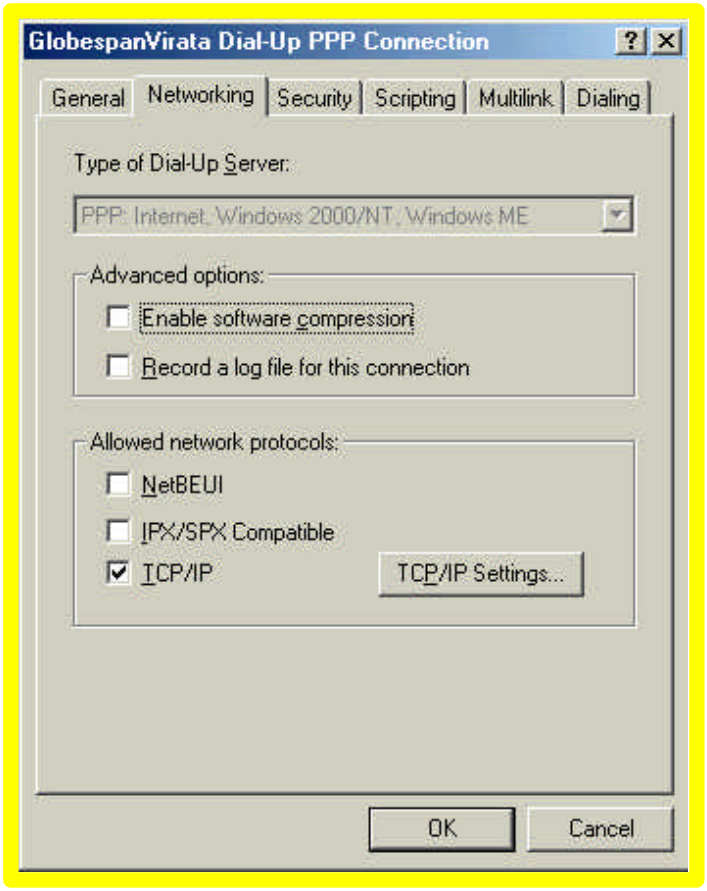
TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, open the Dial-Up Networking window (**Start** - **Settings** – **Dial-Up Networking**).

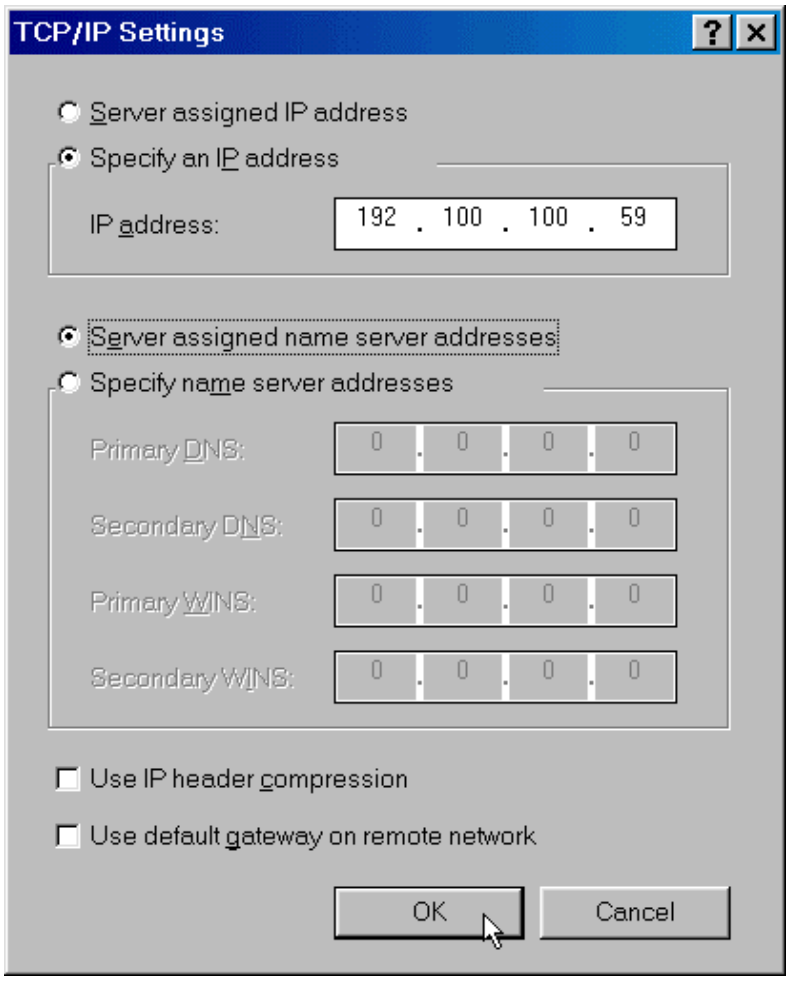
2. From the "Dial-Up Networking" window, right click on the **Dial-Up PPP Connection** icon and click **Properties**.



3. From the “Networking” tab of the “ Dial-Up PPP Connection” window, select **TCP/IP** (marked with a check in the check-box to the left) and click **TCP/IP Settings…**.



4. Use the “TCP/IP Settings” window to modify the IP address, Name Server addresses and/or default gateway as follows:



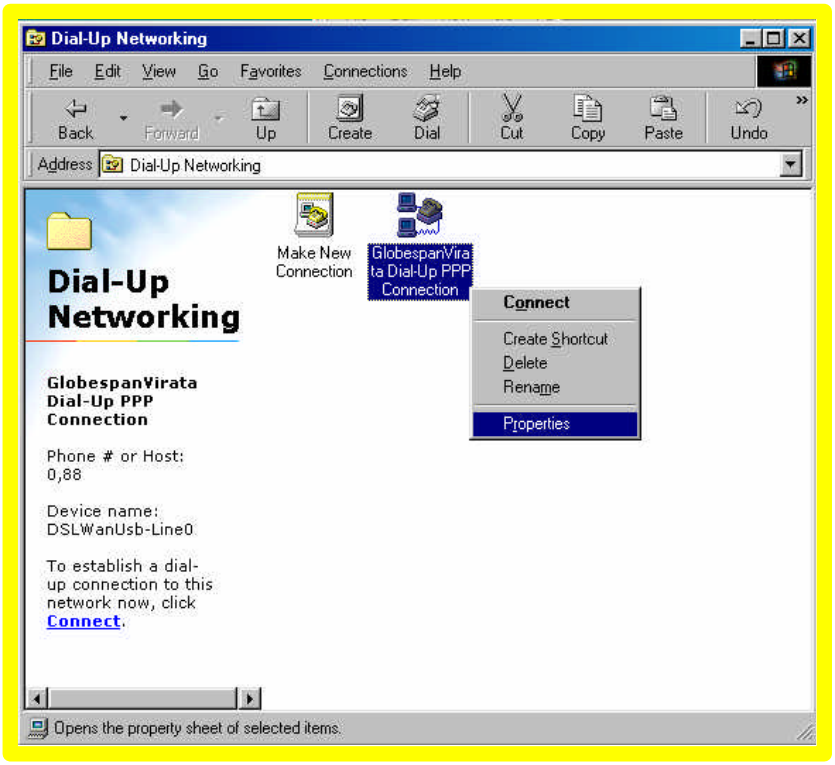
- Change the IP address to a user defined address by selecting *Specify an IP address* (click inside the circle to the left of it) and typing the address in the space provided
- Change the Name Server addresses to user defined addresses by selecting *Specify name server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided
- Change the default gateway by leaving the box blank to the left of *Use default gateway on remote network*.

5. Click **OK** to apply your changes and exit from the “TCP/IP Settings” window.
6. The “ Dial-Up PPP Connection” window will be redisplayed. Click **OK** to end the modifying TCP/IP options session.

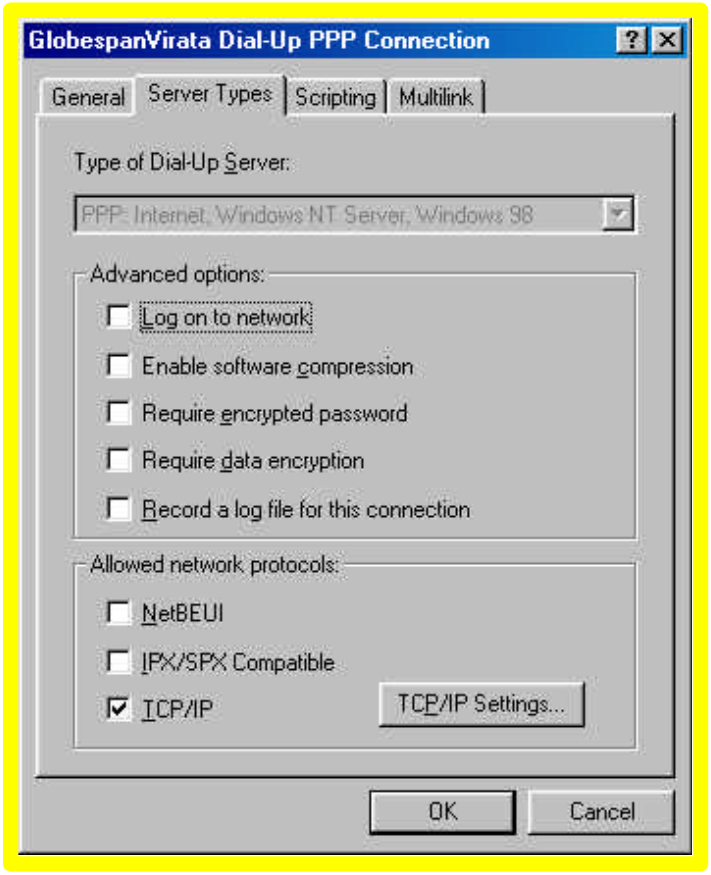
Microsoft Windows 98 and Windows 98 SE

TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

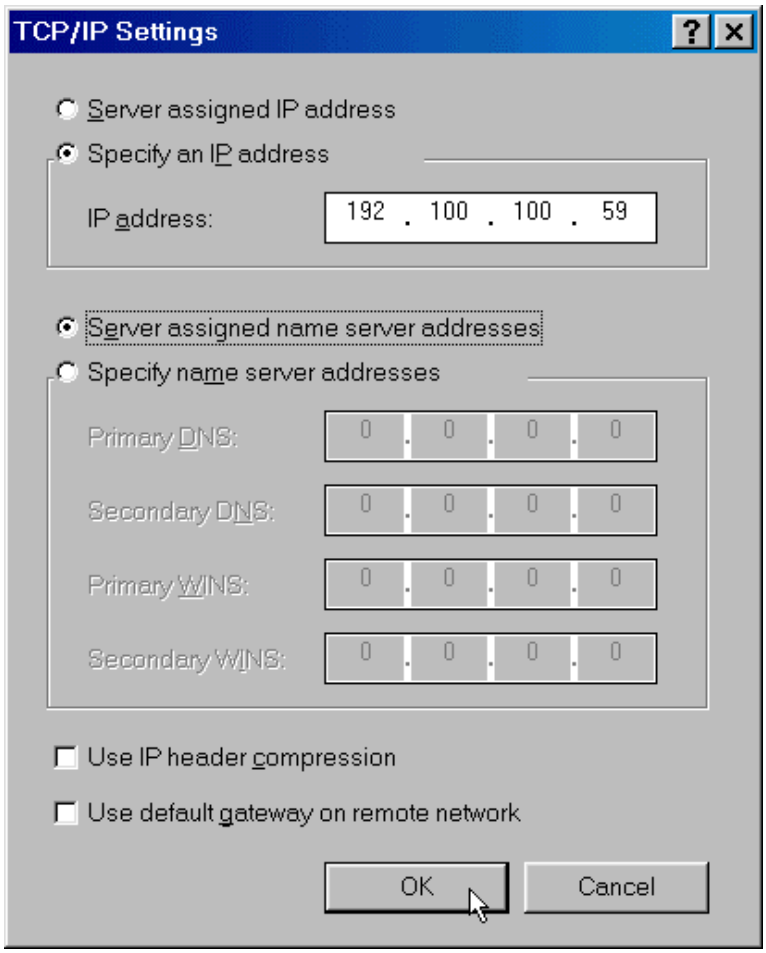
1. From your PC desktop, open the “Control Panel” window (**Start → Settings → Control Panel**). Double click the **Dial-Up Networking** icon.
2. From the “Dial-Up Networking” window, right click on the **Dial-Up PPP Connection** icon and click **Properties**.



3. From the “Server Types” tab of the “ Dial-Up PPP Connection” window, select **TCP/IP** (marked with a check in the check-box to the left) and click **TCP/IP Settings…**.



4. The “TCP/IP Settings” window is used to modify the IP address, Name Server addresses and/or default gateway as follows:



- Change the IP address to a user defined address by selecting *Specify an IP address* (click inside the circle to the left of it) and typing the address in the space provided
- Change the Name Server addresses to user defined addresses by selecting *Specify name server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided
- Change the default gateway by leaving the box blank to the left of *Use default gateway on remote network*.

5. Click **OK** to apply your changes and exit from the “TCP/IP Settings” window.
6. The “ Dial-Up PPP Connection” window will be redisplayed. Click **OK** to end the modifying TCP/IP options session.

Appendix B: Point-to-Point Protocol over Ethernet

PPPoE (Point-to-Point Protocol over Ethernet) is a specification for connecting multiple computer users on an Ethernet to a remote site through common customer premises equipment. PPPoE can be used to have an office or building-full of users share a common DSL (Digital Subscriber Line) connection to the Internet. PPPoE combines the Point-to-Point Protocol commonly used in dialup connections, with the Ethernet protocol, which supports multiple users in a local area network. The PPP Protocol information is encapsulated within an Ethernet frame.

The ATU-R305 ADSL Modem supports PPPoE for WAN, LAN and ATM applications, as presented in this section.

PPPoE for WAN Applications

PPPoE support is embedded into the WAN driver making the modem appear as a dial-up modem to the operating system. Dial-Up Networking is used to establish a connection.

Follow the installation instructions provided in this manual when implementing PPPoE with the WAN driver.

PPPoE for LAN Applications

PPPoE is supported via third party software when implemented with a LAN driver, making the modem appear as a local area network (LAN) device to the operating system. It allows multiple computer users on an Ethernet to share a common DSL connection to the Internet.

After installing the LAN driver, follow the installation instructions provided with the third party PPPoE software. The third party software will search for existing drivers. If multiple drivers are installed, select the ATU-R305 ADSL Modem as the adapter of choice.

Internet connection will be made through the third party software. You will be required to enter your User Name and Password.

PPPoE for ATM Applications

PPPoE is supported with the ATM driver for Windows XP only. After installing the ATM driver, follow the installation instructions provided by Microsoft for PPPoE.

Appendix C: Specifications

ATU-R305 ADSL Modem Connector

The ATU-R305 ADSL Modem is connected to your PC via a USB cable. The rectangular end of the USB cable inserts into the USB port of your PC while the square end of the cable inserts into the USB port of the ATU-R305 ADSL Modem.

Data Transfer Rates

ANSI T1.413 / ITU G.992.1 Data Rates

Data rates for DMT mode are partitioned at 32 kb/s increments for both the upstream and downstream data rates adhering to the DMT Standards. The downstream data rates extend from 32 kb/s to 8.064 Mb/s. The upstream data rates extend from 32 kb/s to 1024 kb/s.

Table 1: ANSI T1.413 Payload Bit Rates

Bit Rate (kb/s)		
	Min	**Max**
Downstream	32	8064
Upstream	32	1024

ITU G.992.2 Data Rates

Data rates for G.992.2 (G.lite) mode are likewise partitioned at 32kb/s increments. The downstream data rates extend from 64 kb/s to 4 Mb/s. The upstream data rates extend from 32 kb/s to 1024 kb/s.

Table 2: G.992.2 Payload Bit Rates

Bit Rate (kb/s)		
	Min	**Max**
Downstream	64	4000
Upstream	32	1024

Power Requirements

Typical Power Consumption

Table 5: CP USB Modem Power Consumption

CP USB Modem Power Consumption	
Power Supply	**Data Mode**
+5V Digital	0.100 W
+5V Analog	0.250 W
+3.3V	0.995 W
+12V	0.896 W
Total:	2.241 W

System Requirements

Windows Operating Systems

- Windows 98, Windows 98SE, Windows ME, Windows 2000, or Windows XP
- 32 MB RAM
- Pentium-class processor (200MHz or better)
- 1 Universal Serial Bus (USB) port
- 10 MB free HD space

MAC Operating System

- MAC OS 9.x, OS X (10.1.x and above; 10.0 is not supported)
- Requires Macintosh USB driver version 1.2 or greater
- Supports iMac/iBook (G3/G4), PowerMac/PowerBook (G3/G4)

Linux Operating System

- 32 MB RAM
- Pentium-class processor (200 MHz or better)
- 1 Universal Serial Bus (USB) port
- 10 MB free HD space

Hardware Requirements

Processor

Intel-compatible 80486 or higher, including Pentium and Pentium Pro.

Transmission Series

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